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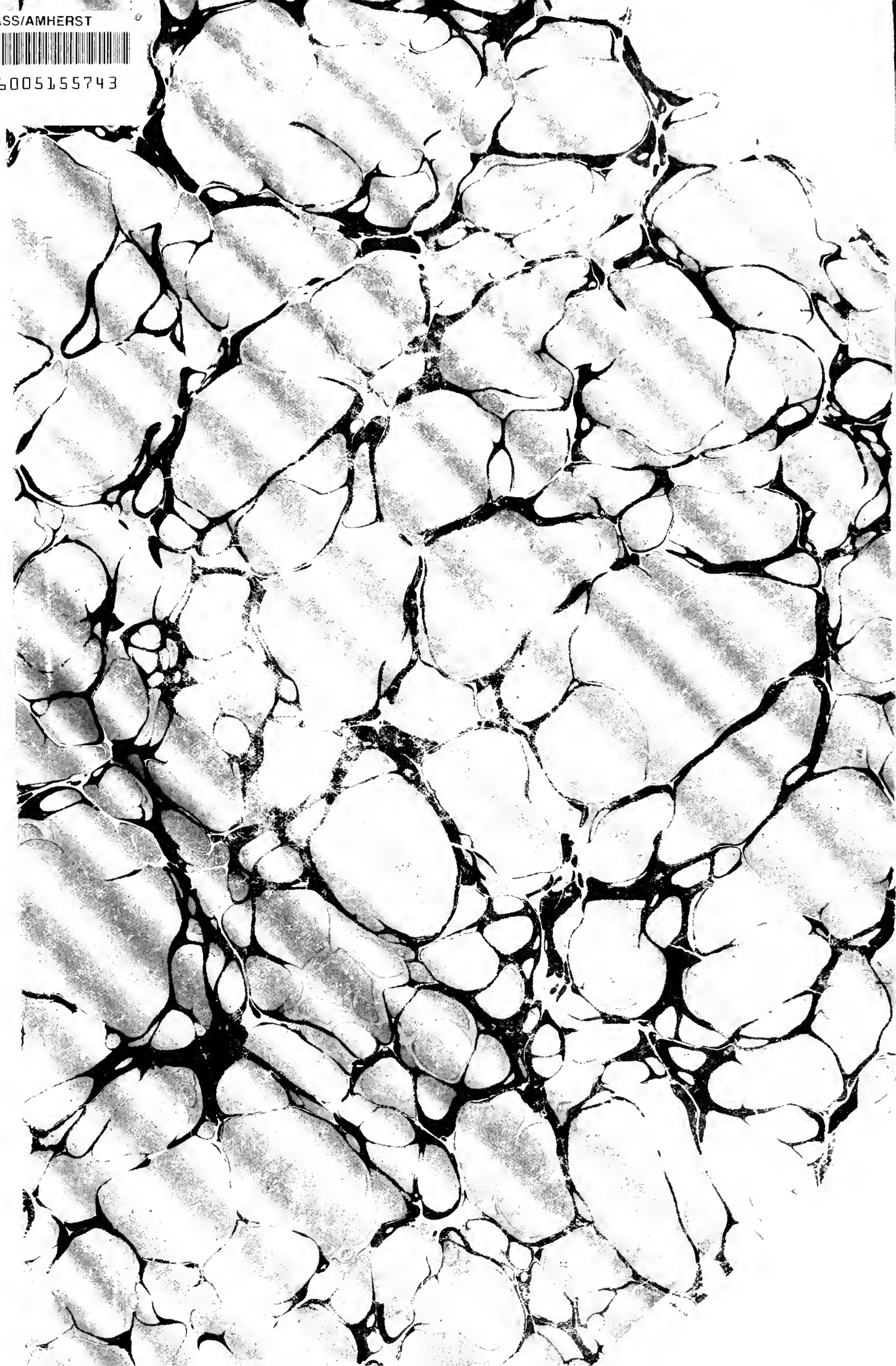

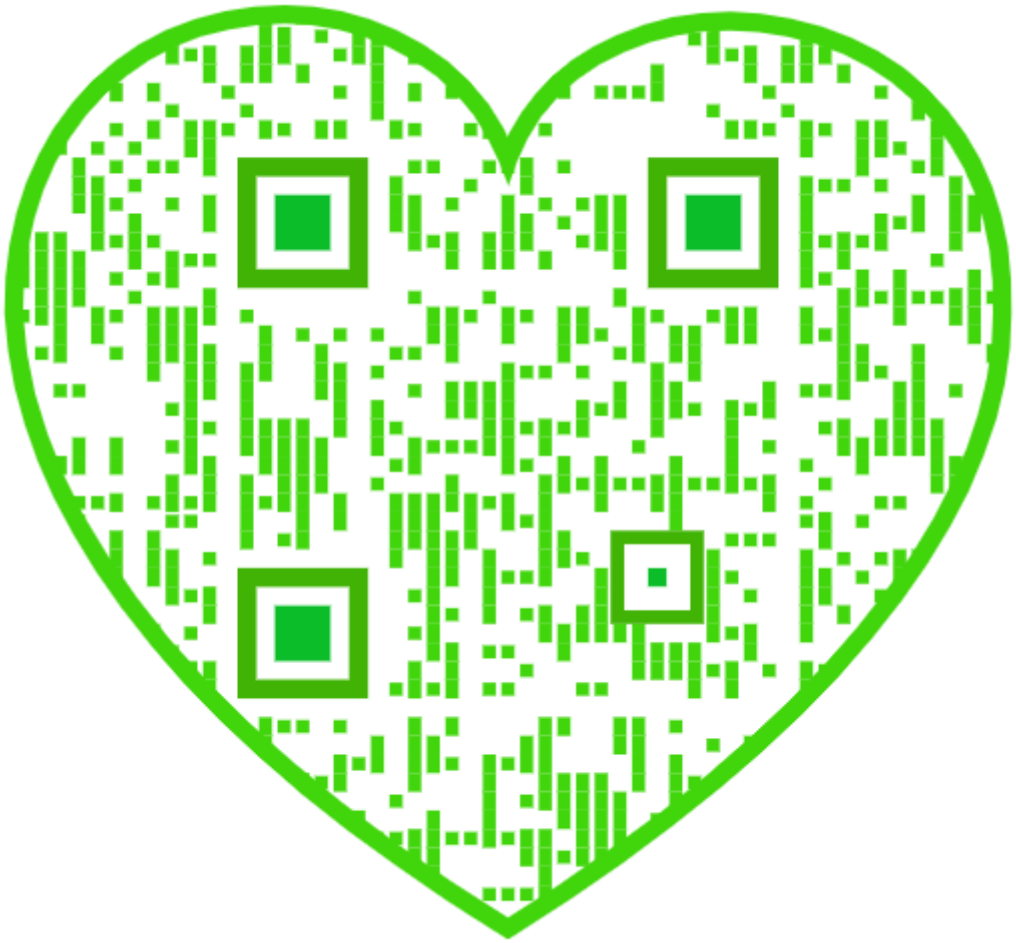

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The New England Tobacco Grower

VOL. VII. No. 1. HARTFORD, CONNECTICUT, MARCH, 1905. $1.00 A YEAR

AGRICULTURAL COLLEGE

News from the Tobacco Towns

South Windsor

The following sales have recently been made: Newton and Shepard to Spitzer, Charles Covell to Wildman, John White to Bogan, George Mullanite and William Driscoll to Halpin at prevailing prices.

At present writing the crops of F. B. Rockwell, A. S. Clapp, D. O'Brien, M. Donovan, W. P. Bissell, Michael McGrath and Troy Bros. are the only ones remaining unsold in this vicinity. Good offers have been made, but not accepted.

As many as twenty growers have a small portion of their crops still on the poles awaiting a damp, the balance is assorted ready for delivery. No damp has occurred since January 7, six weeks ago.

The crop has assorted out well and will average from 25 to 30 per cent. light, and about the same medium. Some sweat is found, the percentage varying in different lots, caused by condition of weather when harvested, space given in hanging and means of ventilation.

A considerable number of lots have been delivered and no complaint on part of packer reported. Better weights are obtained than last year by two and three hundred pounds per acre. ROSWELL GRANT.

East Hartford

Edward E. King, agent for P. Dennerlien & Sons of New York, has received a quantity of tobacco raised in Suffield at the firm's warehouse on Hartford avenue.

The warehouses are now running. Owing to the continued dry weather this fall the warehouses were later than usual in being opened. Meyer & Mendlesohn, who purchased Sutter Brothers' warehouse last year, are employing the largest number at present. Kaffenburg of Boston, who purchased the Ranney street warehouse, has begun to pack. The warehouses are a good thing for the town as mostly local men are employed in them during the winter months. A few more growers have completed the work of assorting.

East Whately

Quinn Brothers have sold 10 acres to a New York party for 13 cents in the bundle. W. T. Smith sold 10 acres of tobacco to Keete of Westfield, at 13½ cents in the bundle.

North Hatfield

E. C. Dickinson has sold his crop of 12 tons of tobacco to Fairchild of Sunderland, for 20 cents in the bundle, on private terms.

C. B. Dickinson has commenced assorting his crop of about ten tons.

Bradstreet

F. F. Cooley recently sold his tobacco to Myer & Mendelsohn at 16 cents in the bundle, about four acres.

Harry Marsh has placed a contract with A. L. Strong of Hatfield for a tobacco barn to be 75x30 feet.

Somersville

Edward T. Hurlburt is having his crop of tobacco sorted on the premises of Albert S. Hurlburt and Charles Billings—some 2½ acres, which is disposed of to Patrick Kief of Westfield.

Manchester

Moses Gebeau, who has been employed at the Hartman tobacco farm for the past two years, has moved his family into the house at the rear of Morton's store and is working for Edward Griswold.

Tariffville

The Havana crop of The Connecticut Tobacco Corporation has been sold to Crump Brothers of Chicago, the grower assorting. The price is said to be 25 cents, assorted.

Granby Station

Fuller and Halladay of Suffield have bought the Havana and Broadleaf crops of Indian Head Plantations, Inc.

Feeding Hills

Edmond Smith will put up about ten acres of new framework this season and increase his acreage of tobacco under cloth to 40 acres. The seed used is described as a hybrid Broadleaf.

Naubuc

W. H. Myers has finished assorting his crop of tobacco.

Kutinsky, Adler & Company have purchased E. B. Hodge's crop of tobacco.

Lancaster Sweating

Several of the largest packers in Lancaster, Pennsylvania, have permanently adopted the bulk process of sweating their new goods and these are very busy now. They have been doing this for years, much to their profit and advantage. There is rarely any loss from rot or white vein, and this tobacco is ready for the market many months before that put away in the old fashioned way is ready for inspection.

When it costs a large packer from $2,000 to $10,000, as it has done in years past, to overhaul their case-sweated tobacco and throw out the damaged portions, there would seem to be an irresistible appeal in favor of the bulk-sweating process. It costs something to install such a plant, but it pays in the long run, and pays well.

Agitation in Australia

Sydney Bulletin Urges Government Control of the Tobacco Industry

IT looks as if state socialism in Australia would swallow up the tobacco industry. The agitators who favor the change have been strongly re-enforced by the Sydney Bulletin, the leading journal of the antipodes, which in a late issue pulished the following article:

The Federal senate select committee has a task like that of drawing an alligator's teeth in seeking to elicit from the agents and officials of the tobacco trust the facts about the organization. The trust represents itself as quite an innocent affair—in fact, not a trust at all; but it has a remarkably strong objection to allowing its innocence to be investigated. One of its servants has, indeed, sought a legal cloak to the policy of evasion and concealment, striving to maintain that the Australian Parliament has no power under the Constitution to make such an inquiry as that now being held into the tobacco trade. The contention seems to be an utterly hopeless one. That it should be raised is a proof of the extra anxiety of the business magnates to keep from the public eye the facts as to their combination, or even the fact that there is a combination at all. But there is really very little to fear from this coyness. It is not strictly necessary that the trust should be convicted out of its own mouth. Ample evidence can be gathered from many other quarters, both as to the existence and the purpose of the combine.

There are two main questions before the select committee—(1) Has there ever existed an organization called the American tobacco trust, and if so, is the Australian combine a branch of that great monopoly? (2) Supposing that fact to be established, is an extension of the operations of the American tobacco trust to Australia likely to be of benefit or otherwise to the commonwealth? The first question is easy of answer with a full "yes." The records of the American tobacco trust are notorious. The facts as to its gradual monopolization of the American tobacco trade into the hands of a small group of millionaires were given a wide circulation when it stretched out its tentacles a couple of years ago to capture the British trade. A trade war then ensued in which millions of pounds were sacrificed on both sides, until the rival capitalists, tired of preying on one another, resolved to join forces and prey jointly upon the public.

From that resolution, dated the great tobacco trust which resolved to monopolize the whole tobacco trade of the English-speaking world (to attempt the same thing as regards Europe was hopeless, because in most civilized European countries the tobacco trade is either in the hands of the Government already, or likely soon to be so). Simultaneously in Australia an end was put to the war then waging between the representatives of the American and the English tobacco merchants. Previously, affecting appeals had been circulated here by one of the agencies complaining of the unfair boycotting tactics of the American trust, and appealing to the consumer to support British fairplay and British tobacco. But with the formation of the Americo-British trusts these appeals ceased. Australia was drawn also into the bosom of the combine, and a combine can get along quite well without what is commonly called "British fair play"—in fact, it finds that article rather an encumbrance than otherwise.

There is no need for the parliamentary committee to ask the trust's officials in Australia whether the trust exists and operates here. That is an obvious fact. The other question and issue, whether the operations of the trust are likely to be of benefit or otherwise to the consumer, is not likely to be decided in any but one way. The millionaires who organized the trust and who have laid out millions in grasping to its tentacles every available country in the world—who have, after much effort absorbed America, Cuba, England, Australia, South Africa—are not likely to have been working for the public's health. Nor is it probable that they are in business for mere amusement, or for the sake of gentle exercise. Their purpose is plainly exploitation. And to what degree can they carry exploitation once their position is sure and unchallenged!

Australia will be absolutely at their mercy as regards the price and quality of tobacco. Except by the limit which local economists sets—that a too great increase in price will limit consumption—the trust will have no restraint on its cupidity. Quality can be whittled away and price increased until the point is reached at which the most money is got for the poorest value. That can be done, and is the light of trust history—and more particularly of this particular trust's—it is safe to say will be done. Private capital having secured a monopoly always uses it oppressively. The Commonwealth, fortunately, has an easy remedy at hand—the transference of the tobacco business from private to public capital—by following the example of the Japanese, French, Italian and other governments. A trust which the people control can be trusted, but no other.

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HARTFORD CONNECTICUT

Boer Tobacco

After Transvaal tobacco, but a long way after, comes Boer. The name is in reality nowadays a misnomer, for this tobacco is grown largely in Natal and Cape Colony. It is also cultivated in the Orange River Colony, is sold by the roll, and can be obtained for about 8d. a pound if a whole roll is purchased. It is also sold by the sack.

White men buy these sacks, but they do not smoke the contents themselves; they use it to reward the Kaffir servants for working overtime, or doing any other meritorious action. The taste for Transvaal tobacco is an acquired one; it also takes a certain time before a man gets used to the scent. No white man who has come from a distance has so far lived long enough to acquire a liking for either the taste or the smell, but it has its uses in the case of the natives, and it is also useful if you have an undesirable visitor whom you are anxious to get rid of. Offer him a pipe of Boer tobacco, and he will never enter your house again.

The traders purchase this leaf largely; they also use it up on the natives in the shape of presents, as every Kaffir who makes a purchase in a country store always asks for a free gift, and the competition to secure the native trade is so acute that the request cannot be refused.—South Africa.

The New England Tobacco Grower

HARTFORD, CONNECTICUT, MARCH, 1905

Feeding Plants

Dr. J. H. Bonesteel on the Duties of the Soil in Plant Growth

THE soils formed by a commingling of mineral and organic matter, by the inclusion of moisture and air, and acting as the storehouse for food and warmth, are the fundamental basis of crop production. It is true that soils furnish only about 5 per cent. of the material entering into the composition of plants, while the atmosphere supplies 95 per cent., but the 5 per cent. is as important as the 95 per cent., since neither can be omitted from the production of farm crops. On the other hand, the composition and distribution of the atmosphere remain constant, no matter how many crops are grown. Again, it is much less possible to change the air over a field than to change the soil under it. So the factors influencing crop yield, which are subject to human change and to human control, are factors of soils and of soil management. For this reason crop production becomes a two-fold study, a study in soils and a study in agronomy, or of that part of it dealing with soil preparation.

Every farmer expects certain things from the soils he is tilling. Possibly he has formulated and catalogued them. Possibly he is only dimly conscious of them.

First—He expects the soil to furnish a suitable mechanical support and a home for the plants. In New York state a soil must be sufficiently dense and coherent one year to support a crop of corn against its own weight and against the tipping strains of high winds. Another year it must be loose enough to allow the tubers of the potato crop or other underground crop to expand. Again, the soil must allow of the wide development, both laterally and downward, of the spreading mass of clover roots. In many rotations the grass and clover roots must have room for two to five years of spreading and development. Thus there are many things required from the soil, when it is merely considered as a mechanical support for successive crops.

Second—In its relationships to moisture and to heat the soil performs some of its most important functions in respect to plant life. All plants, which are maintaining continued growth require for the purposes of that growth large amounts of moisture. This is used as moisture and not merely as a medium for conveying plant food. The protoplasm inside the plant cell must be maintained in a nearly saturated condition, otherwise the plant wilts and dies, no matter how concentrated or how diluted the nutrient solution may be which actually reaches the plant. Under various conditions of climate, especially of temperature and of wind movement, different amounts of water must be furnished to a plant.

Similarly, different crops require greatly different amounts of moisture at the same stages of growth, and even the same crop requires different amounts at different growth periods. With the common methods of crop rotation practised in the latitude of New York state, the same soil may be called upon to furnish five hundred pounds of water for each pound of dry matter produced in a crop of oats one year; three hundred pounds of water for every pound of dry matter in corn another year, and only about one-half as much may be needed for each dry matter pound of potatoes or tomatoes in a third.

It is obvious that these varied requirements from the same soil must be met, not by added plant food, but by differences in soil tillage and soil management. Some of the most effective fertilizers act to aid tillage in preserving soil moisture even more than in furnishing "plant food." All forms of organic manures, lime, gypsum and salt, are known to aid materially in this respect.

Again, the soil must act as a medium for equalizing temperatures. In the spring it must absorb sufficient heat during the daytime to more than balance what is lost at night. In this way only can the soil be warmed to the 40 or 50 degrees Fahrenheit of heat required to germinate ordinary seeds. During the entire season the soil must continue to add to its heat energy during the day that it may be able to maintain temperatures at night. Otherwise, the rapid changes from heat to cold and back again would be much too rapid and too severe to permit of the growth and fruitage of ordinary crops.

It requires about eight times as much heat to warm a pound of water one degree as it does to warm a pound of soil the same amount. So a soil containing 20 per cent. of water takes twice as much heat to warm the water one degree as to warm the soil proper the same amount. If the water is evaporating at the same time, still more heat is required. It is evident that the relationship of a soil to heat is thus largely dependent upon its relationship to water. A soil to be easily warmed should be well drained, and it should also be well stirred at the surface to permit of a free circulation of warm air.

Third—Another function of the soil is that of furnishing actual plant food materials. Now, "actual plant food materials" are mineral and organic substances dissolved in water. The soil must be considered as a deep, porous layer of material, holding moisture and air, together with various kinds of decaying organic matter. It is not only the dish which holds these materials and the reservoir which furnishes moisture, but it is also the chemical laboratory in which they are transformed and the tubular pipe line through which the products are distributed to the plants.

It is a matter of observation that the ultimate products of weathering of a granite, of a limestone, of a shale and of a clayey sandstone are so nearly alike that it is not possible to classify soils on either a chemical or a physical basis into granite soils, limestone soils, shale soils and sandstone soils. When such classifications are attempted differences within the classes are fully as great as differences between the various classes. Many a granite soil contains more lime than a limestone soil and as much silica as a sandstone soil.

As a result of this common end brought about by the weathering of various rocks, the soil solutions formed in the resulting soils do not differ from one another to anywhere near the degree that is commonly supposed or commonly taught. Moreover, the solution derived from all soils, except pure sea sands and pure peat deposits, are sufficiently rich in plant foods to produce any ordinary crop, provided mere concentration were the only necessary point. The influences which exert a greater control over crop growth than small variations in the chemical composition of the soil are: (1) The actual amount of the soil solution in the soil; (2) its freedom of motion from place to place; (3) the amount of air which can be carried to the roots of growing plants; (4) the temperatures maintained during the growing season; (5) the variety of plant grown, and (6) the vitality of the seed.

Cuban Trade

Doubtful Results of the Much Discussed Reciprocity Treaty

THE United States Bureau of Statistics has just issued a statement of our sales to Cuba during 1904, evidently for the purpose of instituting a comparison of the trade of that year, under the reciprocity treaty, with the sales of the preceding year. The New York Sun says:

The showing apparently makes a good case for reciprocity. An increase is shown of 38.9 per cent. The sales of 1903 were $23,504,417, and those of 1904 were $32,644,345.

While a fair percentage of this increase is properly attributable to the operation of the treaty, some consideration must be given to other factors. The most important of these is the increase in Cuba's purchasing power as a result of her increased agricultural prosperity, and the distribution of $25,000,000 or so among her people through the payment of the soldiers' claims, for which provision was made by the Cuban national loan.

About $1,000,000 of the increase appears in the item of flour. We have long supplied Cuba with her flour, usually directly, though sometimes by the way of Spain, and would still do so, reciprocity or no reciprocity. The increase of $1,200,000 in the item of cattle belongs properly to reciprocity. In the adjustment of Cuba's tariff schedule we secured a 40 per cent. advantage over all competitors on this item. Such articles as lard, lumber, coal, corn, mineral oil, naval stores, typewriters, sewing machines and a considerable additional list have no meaning in connection with the reciprocity treaty. Other laws give us a kind of first mortgage on that trade. A part, at least, of the increase in sales of boots and shoes, furniture, paper, leather and a few other items may rightly be credited to the treaty. The effect of reciprocity is most clearly shown in the item of cotton cloth and manufactures of cotton, in which the increase is from $507,985 in 1903 to $1,011,884 in 1904. Yet even that is probably less than 15 per cent. of Cuba's imports of such goods.

Reciprocity has unquestionably had some effect on our sales to Cuba. But it is still too early for any final judgment of the success or the failure of the plan. Two strong factors appear.

Our percentage of Cuba's trade cannot be estimated until she has reported her total imports and submitted her import valuation of American shipments. Those will probably be some $2,000,000 or $3,000,000 more than the figures given as the value of American exports. Just why this is so no man can say, but the discrepancy appears in all statements of export and import figures and with all countries. Amateur statisticans are oft misled and deceived thereby. The percentage of recent years, based, as such estimates should be, on Cuba's official import tables, stands as follows:

1899	43.7	1902	42.0
1900	43.8	1903	41.4
1901	42.2		

The notable increase in our sales is gratifying, but until Cuba submits her report it will be impossible to say whether this downward tendency is checked, and even then only a careful expert analysis in detail can show just what benefit has come from the treaty. Another year will give a clearer idea, and a marked increase in the exercise of American trade energy would make a mighty difference in the showing.

Allowance for Stems

A collector requests of the commissioner to be advised what allowance he shall make to dealers in leaf tobacco in his district, who strip or stem their leaf tobacco. He was advised that no specific allowance had ever been made; that dealers in leaf tobacco will, as required by regulations No. 8, page 15, at the close of each half year, or on January 1, and July 1 of each year, make a true inventory of the number and kind of packages and quantity and kind of leaf tobacco, stemmed and unstemmed, then on hand; enter this inventory in Records 59 for the closing quarter and in their new book for the following quarter, and balance their record of purchases and sales of leaf tobacco after making proper allowance for waste and shrinkage of tobacco; that this allowance, in balancing Book 59 of a dealer in leaf tobacco who strips and stems his leaf, will include credit for stems which, if sold in the usual course of business to other dealers, or to manufacturers, or to persons who buy for export, are directly credited when the entry of sale is made on Record 59.

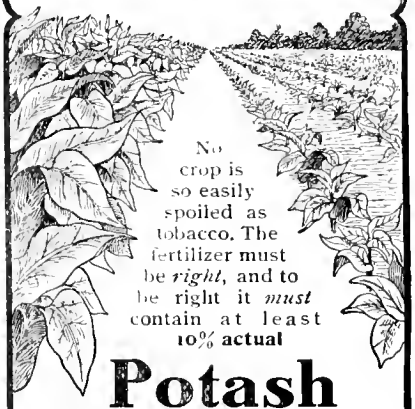
Stems not so sold ought to be rendered unfit for manufacturing purposes before same are removed from the leaf dealer's place of business; that as all sales of stemmed leaf or stems are required to be so designated as to kind, on Record 59, it should be easy to determine whether the allowance taken by a dealer in leaf tobacco is balancing his record is excessive, and in case of doubt the facts in the case should be presented to the commissioner for consideration.

Cigarettes in India

The consumption of cigarettes in India is rapidly increasing, and there is no doubt room for great expansion. So far the United Kingdom has had two-thirds of this trade, the United States and China sharing the balance, except for a comparatively small quantity of the best quality, which is supplied by Egypt. In Madras alone the imports of cigarettes and cigarette tobacco increased in twelve months by 146,300 pounds.

A Tobacco Grower's Profit

is dependent upon a properly balanced fertilizer.


No crop is so easily spoiled as tobacco. The fertilizer must be *right*, and to be right it *must* contain at least 10% actual
Potash

Test it: Supply one patch with fertilizer with plenty of Potash, another with little or no potash, and note the results. Every tobacco grower should have our little book, "Tobacco Culture"—it will be sent free—write to:

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ANNOUNCEMENT

Having refitted and restocked our store at No. 218 State street, Hartford, Conn., we invite everyone interested in Engines, improved Farm Machinery and Water Works to call and inspect our samples.

OUR POLICY

We shall have no agents except our own traveling salesmen, and shall sell direct from the manufacturers to our customers. Purchasers will have the benefit of instruction and advice from our force of experts, who will start all machinery, instead of from incompetent agents with little or no experience.

We are sole agents for Abenaque, Alamo and Anderson Gas and Gasolene Engines, Kemp's 20th Century Manure Spreader, Freeman Special Windmills, Climax Blower Cutters, Harder's Round Silos, Sharpless Cream Separator.

Send for circulars if you cannot call.

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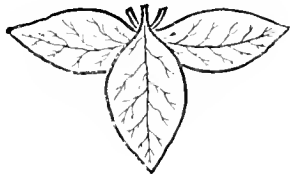
ALTHOUGH the prices of chemicals have advanced very much during the past season, we guarantee to keep the analyses of all the high-grade Essex Specials fully up to the high standard of preceding years. ¶The Growers that use our tobacco goods are among the most successful raisers in the Valley, getting good weight and a large percentage of light goods in **all seasons.** ¶Buy our Tobacco Starter for your seed-beds, your plants will be from ten days to two weeks earlier than those grown on any other formula. ¶Send for our Catalogue.



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Thurber's Confession

One of the Paid Lobbyists for the Passage of Cuban Reciprocity

OPPOSITION to the Quarles-Cooper bill, extending authority to the interstate commerce commission to fix freight rates, was made before the house committee on interstate and foreign commerce in Washington, January 11, by F. B. Thurber, president of the United States Export Association. Mr. Thurber stated that he had heard the statement made at the St. Louis convention of the interstate commerce league that congress was owned by railroads. Not only, he said, did Mr. Bacon make this statement, but others made it.

Mr. Bacon, who was present, made a hot denial of the authorship of the statement, whereupon Representative Mann called his attention to the subsequent proceedings before the committee when he had given Mr. Bacon opportunity to deny the statement and he had declined to do so.

"I wanted you to deny it, and you refused to deny it. I thought you ought to deny it for your own integrity and that of your association," continued Mr. Mann.

Mr. Bacon, continuing: "Well, I never had such a thought in my life, and I think this ought to end the controversy."

Representative Stephens, of Minnesota, asked the witness:

"Mr. Thurber, you are the same person and this export association is the same concern which solicited and received funds of Governor General Leonard Wood, of Cuba, and Mr. Havemeyer, of the sugar trust for Cuban reciprocity."

Mr. Thurber: "The publication bureau did receive money for the purpose of endeavoring to secure Cuban reciprocity?"

Mr. Stephens: "Answer yes or no. Are you the same person?"

Mr. Thurber: "I am, yes, sir."

Mr. Bacon was permitted to ask if Mr. Thurber was in the pay of or expected to receive compensation from the railroads for opposing the pending bill. To this witness replied in the negative.

Registry Requirements

A collector presents the question of whether it will be necessary for a firm of qualified leaf dealers who transact their business in another state to register in his district where they employ a warehouseman who purchases leaf tobacco for them, and maintains a warehouse from which shipments are made direct to purchasers.

The collector was informed that the Commissioner has uniformly held that dealers in leaf tobacco are required to register with the collectors of their district, and to keep books at each of the places where they carry on the business of buying and selling leaf tobacco.

The fact that they might bill all their goods and transact all the clerical part of their business at another place would not be considered a sufficient reason for not registering their business in his district, and keeping book 59 at that place where such business is carried on.

WANT ADVERTISEMENTS.

Advertisements under this head cost one cent a word each time; no advertisement taken for less than twenty cents; cash or stamps must accompany orders, which should be received by the 25th of the month.

WANTED TO PURCHASE—Second hand tobacco baling press. Box 38, care of New England Tobacco Grower.

WANTED—Distributer for the output of a small cigar factory making a specialty of $25 and $30 goods. Box 34, Care The New England Tobacco Grower.

WANTED—Second-hand green bone cutter D. L. B., Box 19, Rockville, Connecticut.

FOR SALE—Canadian hard wood ashes. Try this fertilizer. George Stevens, Peterboro, Canada.

Barnyard Manure

Application and Prevention of Waste Discussed by E. P. Powell

THE question of manures is one of the most important to be considered on the farm, but so far the average farmer has little scientific knowledge on the subject. He simply hauls out from his barnyard the accumulations from his stables and applies them to his fields. One farmer believes in hauling it out as fast as it is made, and another insists on stacking it, to be applied at special seasons. In all cases from 50 to 90 per cent. of the value of barnyard manure is wasted. Probably that which is distributed for immediate ploughing under loses the least proportion of its value. It certainly adds an important humus to our heavy soils.

The German Agricultural Society gives us a report of an exhaustive inquiry. This report shows co-operation of several of the best equipped stations in the empire. Some of the experiments—intended to extend over four years, have been confined to the laboratory, while others are associated with farm practice. One conclusion is that loss in manure can be best avoided by storing it in a deep mass, in a watertight tank, placed in a well shaded situation, and in which the material is firmly compressed. This tank may be a pit in clay soil, and the compression may be accomplished very effectively by the treading of cattle. Where it is obtainable, it is recommended to use a large proportion of moss litter for the absorption and retention of the liquids. Loamy soil, which is rich in humus, will do nearly as well where moss and peat cannot be obtained.

A study of this proposition will show that the real key to it is the retention of liquid manures, and such a composting as shall reduce the mass beyond rapid ferments before it is placed on the soil. For the common farmer the conclusion is simply this, that our barnyard manures should be invariably composed with material that will prove absorbent, and will prevent that sort of fermentation which sets the ammonia free. Probably the most convenient articles for the composting are coal ashes, autumn leaves, and the usual litter, which goes under the head of weeds and refuse, and on most farms is simply wasted. Millions of tons of autumn leaves are annually burned. This means that many thousands of tons of humus which nature has worked all summer to add to the soil are thrown away. Horticultural writers are fond of saying that barnyard manures are the best of fertilizers. They tell us over and over again that such manures contain all the fertilizing elements that plants require for growth, and for producing fruits. This is all true so far as it goes. The trouble with the statement is that it does not tell the whole truth. It should be added that half decayed manure and slowly fermenting manure are preferable to raw manure—for the reason that it is difficult to so apply fresh manure that it shall be immediately mixed with the soil, before undergoing either fermentation or desiccation. Rotting is the result of fermentation and decomposition caused by bacteria. That which is half worked over by bacteria is left in a condition for immediate service. This condition is secured by composting.

The annual value of animals for manurial results is estimated at $27 for a horse, $19 for a cow, $12 for a hog and $2 for a sheep. An important fact about horse manure is that it decomposes readily and produces a large amount of heat; at the same time it is the least likely to be of value as manures are generally applied. Cow manure decomposes more slowly, and goes to waste less rapidly when carelessly placed on the land.

A compost pile should always be placed at a point where rain will not be liable to seriously wash it and where there will not be a dry bottom. The bottom layer may consist of autumn leaves or old straw. On this should be placed in alternate layers, coal ashes, barnyard manure and other layers of straw, sod, muck, leaves and whatever else is going to waste about the farm.

In China

The officials of the several provinces of China are alive to the need of saving as much of the tobacco trade to China as possible, and are giving every encouragement practicable to Chinese farmers who raise the tobacco plants. Chinese farmers have a number of advantages in this connection. In line with their usual intensive methods of culture, they are accustomed to plant tobacco in their mulberry groves. The stripping of the leaves from the trees for the silkworms gives the tobacco plants the light they need when they need it, and later the shade of the trees affords them protection when it is required. All Chinese culture is intensive, and the tobacco plants are treated with the fertilizers peculiar to China.

The tobacco grown is rank in quality and would be rated very low in American markets, but it supplies the Chinese consumer with a product within his reach financially, and this is the chief thing to be regarded in the tobacco or any other trade in the Far East. Methods of treatment of the tobacco plant are crude and are not such as to improve the product. The vast bulk of the prepared tobacco is fine cut, made by pressing a quantity of the tobacco leaves together and planing of the edges with a tool much like a carpenter's plane. The use of cigarettes is increasing.

The amount of tobacco used in China is enormous. Most of it is produced by the consumers or in the immediate vicinity of where it is consumed, and does not get into the trade reports at all. The foreign tobacco trade has scarcely scratched the surface of the field.

Connecticut District

The figures covering the total output of cigars and cigarettes for the year ending December 31, 1904, as furnished by Collector W. Frank Kinney for the district of Connecticut, which embraces Connecticut and Rhode Island, as compared with the figures for 1903, are as follows:

The number of cigar manufacturers in the district is 414, 346 of whom are in Connecticut and 68 in Rhode Island; cigarette factories, nine in Connecticut and five in Rhode Island.

Pounds of tobacco used for cigars:

	1903.	1904.
Connecticut ...	1,028,152	1,040,825
Rhode Island .	180,089	176,307

Cigars made:

	1903.	1904.
Connecticut ...	52,299,691	52,844,698
Rhode Island ..	9,789,148	9,702,273

Cigarettes made:

	1903.	1904.
Connecticut ...	5,210,480	4,605,500
Rhode Island ..	345,000	308,370

Small cigars:

	1903.	1904.
Connecticut ...	none	458,450

The total value of stamps issued during the past year is as follows:

Connecticut, for cigars, ..	$159,735.29
Rhode Island, for cigars ..	28,809.73
Connecticut, for little cigars	275.40
Connecticut, for cigarettes	4,412.71
Rhode Island, for cigarettes	329.25
Total	$193,562 38

Of the cigarettes made in the district, 3,968,000 were made in Hartford, 253,000 in New Britain, 225,000 in New Haven, and 104,000 in New London.

The average quantity of tobacco used in making cigars was about 19½ pounds per thousand; for cigarettes, 3 6-10 pounds per thousand.

F. M. Johnson
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Sanderson's Formula B Fertilizer Contains

Just the right kind of elements to produce a high priced leaf. Try it *this* season. Fully guaranteed to be as represented: : : : : : : :

SEND FOR FREE CIRCULAR.

Sanderson Fertilizer & Chemical Co.

NEW HAVEN, CONN.

Represented by **CHAS. W. SCOTT, Greenfield, Mass.**

In the Old Days

Reminiscences of Cigar Leaf Trading by a Tobacco Leaf Writer

DURING the early sixties Connecticut tobacco was King. Small quantities of the leaf were raised in Massachusetts and a larger amount in the State of New York. Nevertheless, the Connecticut variety was everywhere the favorite, and the clear seed cigar made from it had few rivals. Imported tobaccos, such as Vara, known in sizes as one, two and three cut, the latter being the largest size, were in good demand.

Tobacco raised on the island of Cuba, known as Cuban tobacco, and for which there was a large market, was distinguished by its peculiar shape. The carots were round and shaped somewhat like an acorn, and the heavy veins were arrayed like the ribs of an umbrella when opened. Next to this came Havana tobacco, mostly from the Vuelta Abajo and Vuelta Arriba sections. During these years there were but few strictly leaf dealers.

Most of the New York firms, who in latter years became extensive packers and dealers, were engaged in the manufacture of cigars and located in the Bowery, Chatham, Catharine and Houston streets, and Avenue A, B, C and D. Subsequently, they located one by one in the tobacco belt on Water street, from Wall street to Maiden lane, and a few scattering firms on Pearl and Front streets and Burling slip. The entire number of strictly packers and dealers did not exceed twenty. Some of these continued the manufacture of cigars for years, until the manufacturers to whom they sold their packings looked upon them as competitors.

Like all prudent business men, they concluded to abandon cigar manufacturing, finding it to their advantage to continue exclusively in the leaf trade. The prices of leaf tobacco at that time ranged much higher than at the present time. Connecticut wrappers sold as high as 75 cents to $1 per pound, marked weights, payable in U. S. currency.

Small Sales of Leaf

From cases brought to the attention of the Commissioner of Internal Revenue, it would seem that certain dealers in leaf tobacco at several points in the country have been in the habit of selling to persons leaf tobacco intended by them to be manufactured into cigars for their own use. The collector forwarding information on this subject was advised that dealers in leaf tobacco under the restrictions imposed by the law are not permitted to sell to farmers or to persons other than those mentioned in the statute; that therefore the tax on the tobacco supplied in this instance should be assessed at the rate of six cents per pound and the dealers required to pay the same.

Under section 69 of the act of August 28, 1894, all persons, except farmers and growers, whose business it is to sell leaf tobacco in quantities less than a hogshead, case or bale, or who sell directly to consumers are regarded as manufacturers of tobacco and must qualify as such, and comply with the law, and the collector was advised appeared to have been violated in the instance presented by him, and the dealers in question have incurred the penalty provided therefor, and the fact that the information was given the purchaser by a friend as to the source from which he could obtain his tobacco, leads to the impression that this is not an isolated case; but that these leaf dealers have made a practice of selling illegally to consumers, and that instructions will be given to investigate these conditions throughout the country.

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PAUL ACKERLY, *Editor.*

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EARLY PLANTING

HAVING in mind the question of curing and stripping, many tobacco growers will push the work of preparing plant beds as soon as it is practicable to commence. The experience of the past season, when so much tobacco stayed in the sheds until late in the winter, is fresh in the minds of the growers, as an incentive to early planting.

The early crop may likewise hang for many dry months if the weather takes a notion that way, yet the chances of early taking down are of course greatly in favor of the earlier crops. There are many, also, who believe that a chief cause of white veins is the approach of cold weather before the tobacco has become comparatively dry in the process of shed-curing. Those who believe this will have it in mind when preparing seed-beds, and work toward the early crop.

THE 1905 CROP

SEVERAL newspaper writers have advanced the idea that the very successful season of 1904 will lead to increased acreage, intimating that there might be an overproduction of wrapper tobacco in New England in 1905.

No such view is held by the practical tobacco growers, who understand the situation, and realize that the industry is established on conservative lines, and is by its nature a business in which quick expansion is more often talked of than accomplished.

The increased acreage in 1905 will be only the natural increase of a well-founded business from year to year, fully justified by all conditions.

Early ordering of fertilizers saves worry and waiting as planting time comes on.

Somehow, the talk of strikes among railroad employees times itself just to precede the spring transportation of fertilizers and other agricultural supplies.

Prices have been well maintained this season throughout the New England tobacco growing towns.

It's a good time to plan for keeping more systematic accounts of crop costs. At the end of the season exact knowledge of the details of expenditure will be valuable. Keep track of the labor expended in the different operations.

Shed capacity is a good regulator of crop area. To increase the tobacco acreage very much means the building of many sheds.

Have you tried level cultivation, or almost level, in tobacco? Do you prefer to hill the crop up high? Write your views to The New England Tobacco Grower, and aid in the discussion.

Massachusetts continues to regard the onion as the proper field neighbor of tobacco. With good prices for both tobacco and onions there is duplex prosperity thereabouts.

Try some glass-covered hot beds for tobacco plants, and see if it isn't a scheme with automatic features of its own. All the fuel is put in the fire-box the beginning of the season.

Lancaster Trade

Last week the market in Lancaster, Pennsylvania, was rather dull. This condition is to be expected, however, in a section pretty bare of marketable goods. The market is fairly well cleaned up of old goods, while the 1904 crop is not yet on the market. Besides, the local packers are so busy getting the new crop into boxes that they have little time for anything else. A very large portion of this crop has not only been contracted for, but delivered in the local warehouses.

Deliveries were badly impeded last week, however, by the bad weather. It is estimated that by the end of the present week, with heavy deliveries coming in daily, fully eighty per cent. of the crop will be in local warehouses. In some sections of Lancaster County not a particle of tobacco can be had, all having been bought up; and in other parts so little remains in the growers' hands as to make it not worth the dealer's time to drive after it.

Some of the dealers are investing heavily in York County tobacco, and they are well pleased to get it A number of very excellent crops have been secured there. The total sales of cased goods last week were 480 cases, against 225 cases for the corresponding week of last year.

Cuba's Leaf

Cuban treasury returns of internal revenue collections upon cigars give the consumption as a trifle over 184,000,000 cigars per year, and which would be at the rate of 100,000 smokers about five cigars per day. At the same time over 3,000,000,000 cigarettes were consumed in one year in the Island of Cuba, or a trifle over 20 cigarettes per day for 400,000 cigarette consumers, as the latter number includes some women and half-grown boys.

The actual consumption must be larger still, as the farming population do not pay taxes on their own "vegueros" and as the free cigars in the factories which are given away or surreptitiously taken will swell the total figures considerably more. The Island of Cuba therefore can be safely said to manufacture and consume 54 per cent. of her own tobacco production, or say 300,000 bales, while only 46 per cent., or 250,000 bales, are exported from Cuba to all countries.

Cigar Leaf Market

During the past week in New York the volume of business has considerably diminished in domestic leaf, and the market has not been so buoyant as during the first six weeks of the year. However, conditions are very healthy, with sufficient animation in the market to sustain prices and keep up the appearance of activity.

Sumatra.—Although in this class of tobacco the stocks are very limited, sales are being made every day and in a limited way considerable activity is evidenced. Most of the buyers for the Sumatra importing houses have already left, or leave in the course of a week, to be present at the spring inscriptions.

The Labelling of Tobacco

An act concerning the labelling of tobacco has been introduced into the Connecticut Legislature by Representative Connor of Enfield, providing that all tobacco which is sampled in the state, or which is to be sold by sample, shall be labelled with a tag on which shall be printed the name of the state in which said tobacco was raised. Any person violating the provisions of this section shall be fined one hundred dollars for each offense.

Important Ruling

How Secretary of the Treasury Has Decided Leaf Tobacco Question

THE secretary of the treasury at Washington has replied to the inquiry of the Senate relative to the rulings of the department as to selling and delivery of leaf tobacco by farmers or growers. The ruling states that "the farmer has the right to sell and deliver leaf tobacco of his own raising in the original hogshead, case or bale, or loose in the hand, but is not permitted to stem, twist, roll, plait, sweeten, cut or grind, or otherwise reduce the tobacco from its natural condition in which it was cured on the farm, and sell the same to consumers. The farmer cannot employ an agent to travel from place to place and sell and deliver his tobacco, but he may himself sell and deliver tobacco in any quantity. If the tobacco is sold on sample by an agent, it must be delivered by the farmer or grower directly to the purchaser."

The secretary also quotes from a decision by the commissioner of internal revenue in 1899, which states that the privilege granted a farmer or grower of selling his tobacco to any person and in any quantity is a personal one which cannot be delegated by him to another person, and he would not have the right to ship his tobacco to another person to be sold by such person directly to consumers, but may place it in the hands of a qualified dealer in leaf tobacco to be sold to other qualified dealers, or to manufacturers, or to persons who purchase the tobacco in packages for export.

In closing, the secretary says: "It is due to state, however, that the department has never interfered with the manifest right of the farmer to make the negotiation of his crop through his son or employee on the farm, but the rulings cited have been made for the purpose of preventing the indiscriminate sale of farmers' crops throughout the confines of the United States by agents in competition with tax-paid tobacco."

In British Burma

A supply of 40 pounds of Havana and 30 pounds of Virginia tobacco seed was procured from America, and sent last year to twenty-four districts in British Burma for experimental cultivation. In thirteen districts the experiments were complete failures, owing to heavy rains or destruction by insects, while partial success is reported from Prome, Tavoy, Thayetmyo, Bhamo, Myitkyina and Kyaukse. Good results were obtained in Hanthwaddy, Maubin, Henzada, Minbu and Mandalay. The out-turns were generally heavy, varying from 120 to 400 pounds per acre, and the prices realized averaged from 40 to 50 rupees per viss, and were considerably better than obtainable for the country variety.

The Havana in particular is much esteemed by the people and preferred to the local variety, and Maubin has become an important centre for its cultivation. There is a large export of the leaf, while very little Indian tobacco is now imported into the place. Seeds obtained from previous experiments are extensively utilized by cultivators, and the industry at the centre named may be said to be flourishing. Locally, rolled cigars from the Havana leaf find ready sale, and the export is steadily increasing.—Rangoon Gazette.

East of the River

A Connecticut tobacco grower, writing to the New York Rural New-Yorker, says:

Forty acres is the extent of the farm, tobacco the principal crop. This year I had 2½ acres of tobacco, and have sold it for 20 cents per pound, but it is only half ready to deliver at this date. Probably it will weigh 4,800 pounds. Tobacco, $960; cream, four cows, $180; poultry, $100; one-half acre potatoes, $75; corn, 200 bushels, $75; pork, two pigs, $40; total, $1,430. Expenses: Fertilizers, $150; hired help, $200; cost of pork, $20; taxes, $39; living expenses (two), $300; total, $709. Income, $1,430; expenses, $709; balance, $721. The above is for this year, as far as I can guess. Last year my tobacco came to only $160 for three acres, and all other receipts and expenses about the same. Two years ago two acres came to $670.

You ask a hard question about the average income from farms around here. One man will raise two acres of tobacco, another five to 10. One man will keep two cows, another seven or eight. Some raise stock and tobacco, with other produce, and work out what chance they get. There is hardly a farmer but what makes a good living, but I suspect one-half of them do not get ahead very much, taking all years together. I know the merchants hold a good many mortgages, and I know most of the people are reticent about money matters. One object may be to keep their taxes down.

Glastonbury

J. H. Hale says: I have been employing Italians these good many years, and for 10 years now have settled down entirely upon those from the north of Italy, Piedmont, Lombardy and Venetia, and any new men who come to me each spring are friends of those already in my employ. This same class of people are also largely employed in a number of the high-class hotels of New York, and as they always like a little summer vacation, I get from there most of the surplus I need in the rush of the fruit harvest.

Often, when needing any number of men in a hurry, I secure them through an Italian friend, who is a grocer in the nearby city of Hartford. In common with leading Italian grocers in nearly every large town he carries on his list and furnishes with supplies a good many of his friends and their families, when they first come to this country, in need of some support while looking for work. These grocerymen or other Italian business men, place a good many emigrants at work, so in the end they may be repaid for whatever advances they have made. As to the Italian women, the work in my own household has been done by them for a good many years past to very great satisfaction.

My partner at the Hale & Colem n farm in Seymour, Connecticut, has a man and wife who live on the place, the woman doing any portion of the housework required, while she delights in tree pruning, thinning the fruit and in the harvesting.

In Massachusetts

I cannot give absolutely accurate figures, but the average income from my farm is about as follows: Butter, $300; eggs, $115; calves, $40; poultry, $65; pork, $10; garden truck, $15; blueberries, $60; potatoes, $200; total, $805. Besides this our family, five to seven in number, is supplied with vegetables, milk, butter, pork and poultry. My home place consists of 65 acres, mowing or tillage, pasturage and woodland. I also hire for a term of years 27 acres additional from which I cut two or three tons of hay and pasture the rest. Sometimes I receive more than the foregoing estimate, and sometimes less, but I think I have given a fair average.

My neighbors are not receiving as much, and they are not paying out nearly as much for grain as I do (I could get rich, and so could lots of eastern farmers, if it were not for the grain bill), preferring to sell hay rather than get it through buying grain and fertilizer. It costs me nearly a dollar a day for grain, and I paid over $68 for chemicals for 1904. But I have this satisfaction: My farm grows better right along, while many are growing poorer. Some farms here are devoted to making milk; these farms improve year by year, and the owners seem to make a fair living.

Tampa, Florida

Business seems to be moving along all right, and there are no growls to be heard. The most of the manufacturers are feeling very optimistic as to the prospects for the industry the present year. They have certainly shown their faith by the way in which they have been buying tobacco.

Forty Years Ago

By an Old-Time Cigar Man in Tobacco Leaf

THE tobacco industry forty years ago was conducted on a sort of combination basis. Dealers were packers and importers of tobacco, manufacturers of cigars and dealers in cigar ribbons. There was a very small number of strictly leaf tobacco dealers, and these only in a small way. Cigars were the bulk of the business. Notable among the leading cigar manufacturers was M. H. Levine, 162 Pearl street, New York. The output of his two hundred cigarmakers was chiefly for the California market. His specialty was a fine Connecticut wrapper.

Some of the present-generation dealers remember Oswin Wells' Connecticut packings, known as O. W., which were the recognized standard as to quality, packing, sizing, selection, honest weights and tares. Whoever wanted O. W. tobacco got it from Levine at his price. Horn & Co., of San Francisco, were running a cigar stand at the Metropolitan Hotel, Broadway and Prince streets, and Levine's cigars retailed from 10 to 30 cents.

It may startle the reader to learn that Levine sold his cigars as high at $200 per thousand, but such was the fact. Every brand at that time was an imitation of the imported Havana article. The popular ones of those days are unknown to the smoker of the present time, viz., El Sol de Santiago, Flor de Fuma, Espanola, Figaro, Principe, etc. There was no imported stamp nor box brand distinction in the appearance of the boxes. A cigar which was well made and seemed to have the proper age and colors, especially if of a dark tobacco, commanded high prices. Manufacturers resorted to sweatings and coloring so as to be able to produce salable colors.

As time progressed, Levine gradually retired from manufacturing, and confined himself to the handling of leaf tobacco exclusively, his specialty being O. W. Connecticut. His seconds were sold blind without any inspection, relying solely upon the trade-mark O. W.

Levine was a very peculiar and eccentric man. In stature he was scarcely five feet high, yet very stout, weighing possibly 170 pounds. His head was of very large proportions, and characteristic of intelligence and shrewdness. He was of quick conception, and prided himself on being a judge of human nature. It has been said that he seldom lost any bills of any account. His business in O. W. increased to such a magnitude that at one time he gave his checks for $800,000 currency for one packing, gold at the time commanding a premium of over 200 per cent.

Levine had a customer, a countryman of his, who at the present time is still engaged in the tobacco business. He had implicit faith in the latter's integrity, and this confidence was never abused. One day Levine sent for this customer to look at four hundred samples of tobacco, and he stated the only price was 16 cents per pound, net cash. The customer examined the samples and closed the deal. To have offered Levine 15⅞ would have been useless, but at peculiar moments if 65 cents was asked and an offer of 28 cents made, he would say, "make it 28¼ and I it's yours." The purchaser received the goods, the bill being $25,000 with a credit of six months, instead of being drawn for net cash. When he noted the change of terms, he called upon Levine and pointed out the mistake, possibly made by the bookkeeper. Levine, in his eccentric manner, replied, "I made the change. I have dealt with you for a long time, and trusted you for large amounts. I never knew whether you were worth a dollar, therefore I simply tested your financial strength."

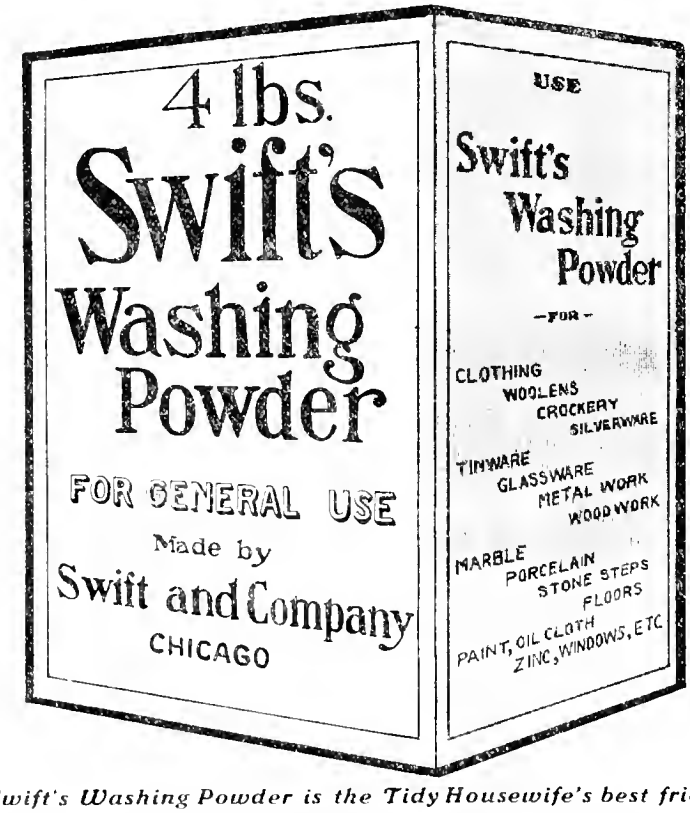
The customer answered, "That's all right, but I think your idea is foolish. Could I not have borrowed the money?" "Of course, you could. I simply wanted to know whether anyone else would trust you such an amount besides myself." Both parties remained steadfast friends up to the death of Levine.

Many of the Connecticut crops were treacherous. Numerous fortunes were swept away in a single crop. The 1865 crop was of a thick, gummy nature, in appearance like Western tobacco, and similar to the 1870 Connecticut, with the exception of white veins which were quite prominent in the latter. By rare good fortune, Oswin Wells did not pack a single case of either crop. Until the death of Mr. Wells, O. W. held its reputation and commanded its own price.

Porto Rican Tobacco

The Vega Alta correspondence in a recent issue of the San Juan News contains the statement that the price of filler tobacco in that section is constantly advancing on account of the scarcity of the leaf. Inferior qualities are now quoted at from $12 to $15, while the better grades fetch from $20 to $26 per quintal. The lower grades comprise the bolices (loose leaves) generally used for cigarette cuttings. The above prices are quoted for tobaccos in matules.

In Bairoa and Caguas there is practically no tobacco now to be had, and there is a general scarcity of all grades on the island.



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Try a package and see for yourself.

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19 John Street, - - BOSTON, MASS.

What Whitney Claims

Soils Bureau Advances Certain Statements as to Texas

MILTON WHITNEY, chief of the Bureau of Soils of the United States Department of Agriculture, has submitted a report on the "Opportunities for the Production of Cigar Leaf Tobacco in East Texas and Alabama." The report in part reads:

"A few years ago the attention of the Bureau of Soils was called to a new tobacco industry in East Texas, where it was reported considerable progress had been made in growing a domestic filler leaf from Cuban seed. It was found that quite an extensive acreage was being planted around Willis, Montgomery County, and that several warehouses and cigar factories were in operation there.

"An examination of the tobacco, made by the bureau expert showed that some of the leaf produced was of excellent quality, surpassing in aroma any domestic leaf examined up to that time; but that the crop, as a whole, was not such as to warrant the prediction of any phenomenal development of the industry along the lines then being followed.

"In 1901 the bureau made a survey of the soils around Willis, at the same time investigating the condition of the tobacco industry, and especially the relations of the quality of the leaf to the soil producing it. In the following year the investigation was carried further by a tobacco expert, who began experiments in growing tobacco which were not conclusive. However, an important result of the soil survey and experiments around Willis was the discovery that the type of soil had a marked influence on the quality of leaf produced, and that the leaf grown on the type given the name of Orangeburg sandy loam (a reddish or grayish sandy loam with a red clay subsoil) possessed a much finer aroma than the leaf grown on any other soil in the area.

"Other surveys made during 1902, 1903 and 1904 have established the fact that the Orangeburg sandy loam is a soil of wide distribution in East Texas, as well as in the other Gulf and South Atlantic States. It is associated with other Orangeburg soils, of which the Orangeburg clay is also believed to be a good tobacco soil. In Anderson County alone 102,800 acres of the Orangeburg sandy loam and 35,904 acres of the Orangeburg clay were mapped. In Nacogdoches County in an area of 100 square miles mapped around the town of Nacogdoches 16,320 acres consisted of the Orangeburg sandy loam, and 16,704 acres of the Orangeburg clay. In Houston County large bodies of this sandy loam are found. In Alabama the Perry County survey showed 82,000 acres of Orangeburg sandy loam, while surveys in south Carolina, Georgia, Florida, Mississippi and Louisiana have included areas of this type.

"There is thus an ample area of soil suitable for the growing of cigar leaf tobacco in Texas and other Southern States, and in Texas particularly, and the thought occurred that whatever deficiencies in the leaf formerly produced were due to an indiscriminating use of soils might at once be eliminated in the light of knowledge of soil adaptation gained during the Willis and subsequent surveys. Following out this idea the bureau in 1903 conducted a series of tobacco experiments on the Orangeburg soils around Nacogdoches, Lufkin and Woodville, Texas. Three acres of tobacco were grown near the first mentioned town, three acres at Lufkin and three and a half acres at Woodville, the entire crop, after fermentation and packing, amounting to 6,818 pounds. During 1904 further experiments were conducted at Nacogdoches, Crockett and Giddings, in all about 10 acres of tobacco being grown. Owing to the unfavorable conditions at some of the stations the tobacco on only 8¾ acres was harvested, from which 5,161 pounds or 624 pounds per acre, were secured.

"The 1903 crop is now being sold and distributed among the principal cigar manufacturers of the country who express satisfaction with the leaf. It is the general feeling of the trade that this tobacco will fill an important place in the market, if produced in sufficient quantities and at reasonable prices. The tobacco being an entirely new product, and having at the present time no fixed status in the market, it is to be expected that its introduction will be more or less slow and tedious, and the growers of this Texas leaf must not at first look for the highest prices. On the other hand, judging from the character of the leaf grown and cured under the supervision of the bureau, the prices should increase considerably as the trade becomes acquainted with the tobacco and channels for its distribution become established.

"The value of this tobacco, as far as the bureau has informed itself to the present time, varies considerably, the prices for the finished product ranging from 25 to 40 cents a pound, according to the grade and quality of the leaf, but the grower can not expect to obtain at the outset more than 15 or 20 cents for the unfermented leaf. From computations based on the past work of the bureau it is estimated that the cost of growing the tobacco, under normal conditions, should not exceed 10 cents a pound. The average yield is estimated to be 600 pounds or more per acre.

"During the past two years the bureau has also conducted experiments in Perry County, Ala., and in Darlington and Orangeburg Counties, S. C., upon the same types of soil as in Texas.

"The tobacco grown in Alabama, while not considered quite as good as the Texas product, meets with much approval from the trade. That grown so far produced in South Carolina pronounced satisfactory, and while the bureau will continue its experiments in that state on a small scale, the hope that methods for the improvement of the leaf produced there may be discovered, it does not for the present recommend that the farmers enter into its production. In Texas and Alabama, on the other hand, the indications are so favorable that the Department of Agriculture, through the Bureau of Soils, will encourage the farmers to undertake the growing of the crop to a limited extent.

New York

Experts in the employ of New York City have caused the arrest and detention in Bellevue of a North Carolina capitalist, basing the charge of insanity on the ground that he was about to invest some $40,000 in the growing of filler tobacco in Texas.

Conway

Not much tobacco is moving there now. One small lot that was bought recently has been delivered for 11 cents in the bundle.

JENKINS & BARKER,

Successors to Col. Charles L. Burdett.

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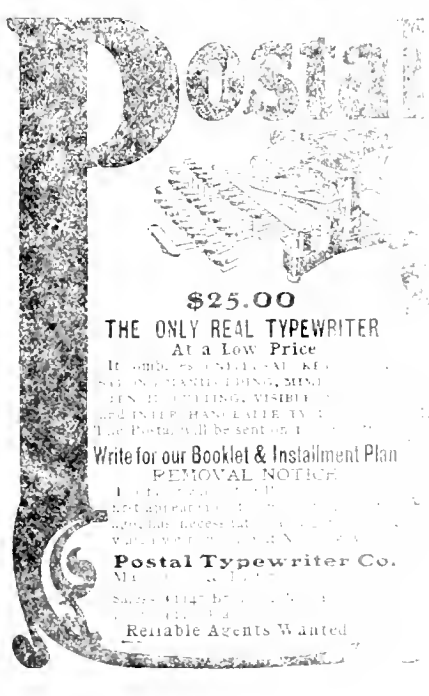
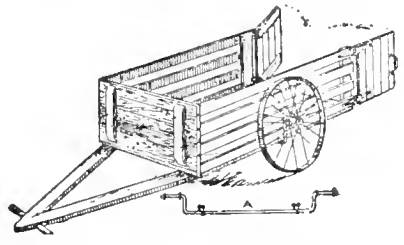


A STOCK CHARIOT.

A Homemade Arrangement, Handy For Loading and Moving Animals.

There is hardly a farm where any amount of stock is kept on which a stock cart built similar to our illustration would not prove itself indispensable in course of time, says George W Brown of Hancock county, O., in Ohio Farmer. Two discarded buggy axles worked over at a blacksmith forge form a drop axle for this cart. In the cut A shows the axle, which should be left standard track width, pieces a foot in length being inserted near the stubs at each end, which forms the drop in the axle to lower the bed nearer the ground. A bed is made, as shown in the illustration, just the width to fit into the axle and about five feet in length



A HANDY STOCK CART.

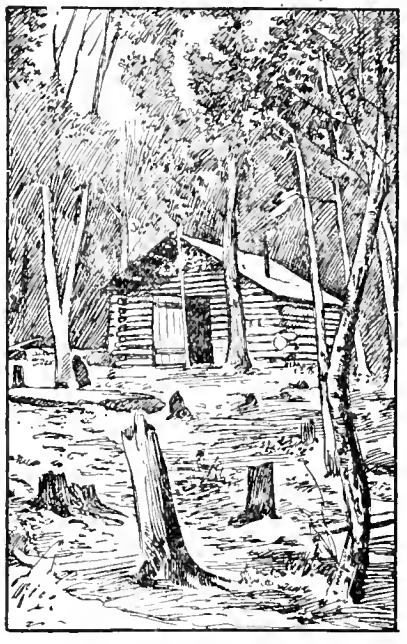
and bolted to the axle near the middle of the bed. A cart handle is bolted upon the front, and the rear is fitted with two doors and a good strong latch. This cart can be readily backed up, when mounted upon wheels, to any pen, the rear end dropped to the ground, the doors closed behind, the cart attached to the rear of any other vehicle and the animal transported as many miles as desired with ease. By making the front end gate and cart handle detachable this "rigging" can be wheeled up to the rear of a wagon and used for a chute in loading hogs or sheep. These carts are very popular here and are very appropriately dubbed "stock chariots" by their owners.

The Cabbage Snake Harmless.

Entomological authorities as far as heard from seem to be unanimous in pronouncing the so called "cabbage snake" story a fake. It is true there is a harmless worm which is headless and, in the cabbage, lives only by absorption of the juice of the plant. It is thought to originate as a parasite on grasshoppers and other cold blooded insects. A bacteriologist states that it will not live in the human body, which is too warm for it. It cannot stand the absorption of the warm juice or gases of the body. This worm, however, has apparently been found in unusually large numbers in cabbage the past season and has been by no means beneficial to the prospects of those with whom krautmaking is generally a profitable industry.

Seeking Fresh Pioneer Territory.

The young man who wishes to grow up with the country may now go east rather than west. The illustration, reproduced by permission of the Boston and Maine Railroad company, shows



SETTLER'S HOME IN A MAINE FOREST.

how a pioneer home has been carved out of the original forests. The good farming land in northern Maine is believed to be fast increasing in market value.—American Cultivator.

A SUITABLE LOCATION

For Tobacco Growers

FOR any business man, professional man, or industry, is easily obtained by consulting the Industrial Department. ¶The proposition submitted will be attractive, embodying just the information desired to intelligently consider such an important matter as change of location. ¶Our monthly magazine of Southern opportunities will prove invaluable to those interested in the South.

THE LAND OF MANATEE

IS the most beautiful section of America, heretofore without rail facilities. The climate is delightful, the atmosphere salt-laden and perfumed by thousands of blossoming orange, lemon, grape fruit and guava trees and the most beautiful and fragrant of flowers. ¶A land of perfect health, ideal living, where crime, trouble and ill health are as yet unknown. Manatee booklets describe it in detail.

The most costly piece of railroad literature ever issued is the special Southern edition of the Seaboard Magazine of Opportunities,—yes there is one for you. It is unique, contains no advertisements, but hundreds of full page and half page photo gravures,—the most exquisite examples of the modern printer's art and each worthy of framing. Sent free on receipt of ten cents to pay postage.

J. W. WHITE *General Industrial Agent*
Portsmouth, Va.

SEABOARD AIR LINE RAILWAY

LUTHER M. CASE,

WINSTED, CONNECTICUT,

Packer and Dealer in

Connecticut Leaf Tobacco.
Shade Grown ∞
Sumatra in Bales.

Main Warehouse and Office, Pine Meadow, Conn.

BRANCH WAREHOUSES:
Southwick, Mass.,—Foreman, H. L. Miller.
East Canaan, Conn.,—Foreman, L. F. Bronson.
Barkhamsted, Conn., -Foreman, L. A. Lee.
North Hatfield, Mass.,—Foreman, Willis Holden.
New Hartford, Conn.,—Foreman, James Stewart.

SUMATRA PLANTATIONS:

Pine Meadow, Conn.,	25	Acres
Barkhamsted, Conn.,	20	Acres
Southwick, Mass.,	15	Acres

Always in the market for old Tobacco if well assorted and packed. Havana Seed Wrappers a specialty, assorted and sized into thirty-two grades.

Drawing Out the Manure.

In many places the manure is spread directly as drawn where wanted, and the method is found to work well on most soils and farms. There are a few locations where the practice would not be best, but the instances are comparatively few. Where the manure is disposed of in this way it saves much work in spring and allows of earlier seeding, which is often of much consequence.—American Cultivator.

Up to Date Young Farmers.

Eight thousand farmer boys of Illinois contributed to the grand corn display of their state at the world's fair, to which was awarded the highest of all honors, "the grand prize." There were 1,000 exhibits of ten ears each, and about 600 of the neat little corn pyramids were fittingly finished off with the photograph of the youthful grower.

Warehouse Collapsed

The new tobacco warehouse of A. Fruitema & Co., at Murray, Kentucky, collapsed February 9, causing a damage of over $4,000. There was a large amount of tobacco stored in it. The warehouse, which was a frame structure, was completed only a month ago. The weight of the snow on the roof is supposed to have caused the collapse.

Feeding Hills

The sales of tobacco have been lively. But few lots remain in growers' hands, and these mostly from difference in the price asked and offered. The prices ranged from 11 to 16 cents in the bundle. Some of it is to go to New York, but most of it to Enfield.

Items of Interest

During the past year the bureau of animal industry distributed 1,000,000 doses of black leg vaccine, and over 10,000 persons reported highly satisfactory results. The number of animals that died after vaccination was reduced to .44 per cent of the number treated.

The lack of potash in a soil is often manifested by a yellowish brown discoloration of the leaves of the potato plant.

Corn stover can be used to excellent advantage as roughage for beef animals, and, with a moderate amount of grain, it compares very well with hay, says a Virginia feeder.

Red Fife wheat, Banner oats and Mensury barley were grown after spelt or emmer, summer fallow, and wheat in some Canadian tests, and in each case the highest yields were obtained where the crops followed spelt or emmer and the lowest where they followed wheat.

American National Bank.

CAPITAL $600,000. SURPLUS and PROFITS $300,000.

JOSEPH H. KING, PRESIDENT — WILLIAM J. DIXON, CASHIER.

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IT PAYS

To possess a check account. It encourages business thrift and shrewdness and gives one a knowledge of business not obtained in other ways. Confer with our cashier. He is ready and willing to advise you.

INJURIES TO SHADE TREES.

Dr. Stone of Massachusetts Discusses Shade Trees and Electricity.

Dr. George E. Stone of Massachusetts calls attention to the increasing interest in recent years in shade trees and roadside improvement and to the good results from the renewed interest in tree planting. He also points out the many adverse conditions with which shade trees have to contend and which "are likely to increase with the development of our cities and towns along present lines." Among these Dr. Stone has made a special study of injuries due to electricity. He says:

"The increase of electric railroads, electric lighting systems and telephone lines, which have their wires located usually adjacent to the tree belt, necessitates a large amount of disfiguration by pruning, and the close proximity of wires to trees too frequently causes a serious injury to them in other ways. A tree that has been severely pruned or disfigured by a mass of wires is scarcely better than none (Fig. 1).

A considerable amount of damage occurs to shade trees by wires, causing abrasions, destruction of limbs and leaders, burnings and necessitating much injudicious pruning.

The greatest amount of damage caused to trees by alternating and direct currents is by local burnings (Fig. 2). The higher the electro motive force (voltage) the more injury is likely to occur to trees.

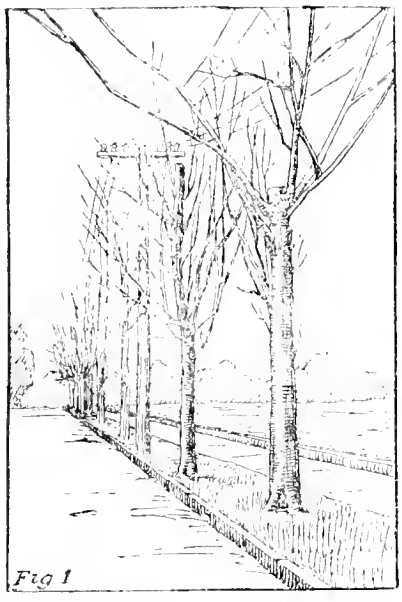

FIG. 1, DISFIGURATION OF TREES CAUSED BY ELECTRIC WIRES.

There is practically little or no leakage from wires during dry weather. In wet weather, however, when a film of water is formed on the bark, more or less leakage is likely to occur, and if the insulation is insufficient and contact with the tree exists grounding takes place and burning due to arcing results.

No authentic cases have been observed by us where the alternating current employed for lighting service has killed trees, though there are authentic cases, extremely rare, where the direct current used in operating street railroads has killed large shade trees (Fig. 3). This has been accomplished by reversing the polarity, causing the positive current to traverse the rail and the return current the feed wire, which usually carries the positive.

The high resistance offered by trees and plants in general serves as a protection against death from electrical contact.

The physiological effect of the direct current on vegetable life differs from that of the alternating. The latter current acts more as a stimulus to the plant than the former.

There is evidence to support the idea that a current of not sufficient strength to cause burning may overstimulate

Leslie W. Newberry Richard J. Goodman

Newberry & Goodman

Law Offices

First National Bank Building

50 STATE STREET HARTFORD, CONN

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F. F. SMALL & CO.

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14 Fort St., SPRINGFIELD, MASS.

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For Your Home,
Your Manufacturing Plant,
Your Business.

FARMS IN VIRGINIA, NORTH AND SOUTH CAROLINA, GEORGIA, ALABAMA, MISSISSIPPI, KENTUCKY, TENNESSEE.

GOOD LANDS AT LOW PRICES.

A healthy Climate, Long Growing Season and an all-the-year working Season

The South is now making greater progress than any other section. If you would learn about its developments and the opportunities for good locations along the SOUTHERN RAILWAY, write for copies of our publications, which which will be sent free on request.

M. V. RICHARDS,

Land and Industrial Agent,

Southern Railway, Washington, D. C.

INDIAN HEAD PLANTATIONS

INCORPORATED

Growers and Packers of Leaf Tobacco

Assorting and Packing for the Trade

Specialists in Selected Tobacco Seed of the Cigar-Leaf Variety

Plantation Houses and Office at
Granby Station
N. Y., N. H. & H. R. R.
Express, Telegraph and Freight
Address: Granby Station
Telephone: Simsbury 32-14

TARIFFVILLE
Connecticut

the plant and cause a retardation of its activities which will subsequently result in death.

Earth discharges during thunderstorms are more common than are generally supposed, and they are known to disfigure and cause the death of trees (Fig. 3)

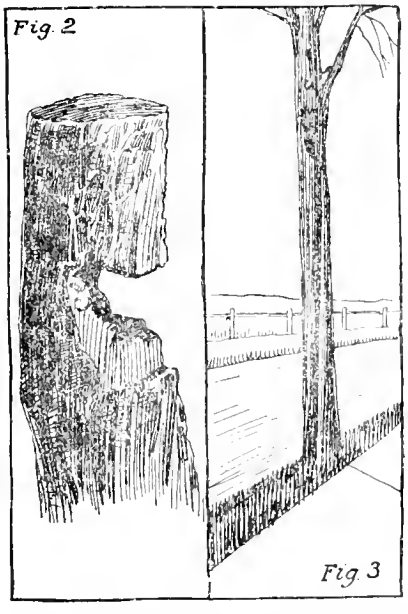
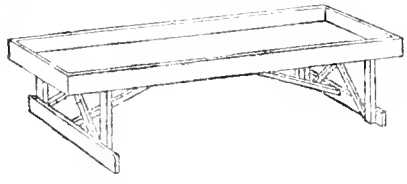


FIG. 2, DEEP BURNING OF A LARGE LIMB. FIG. 3, EFFECT OF EARTH DISCHARGES OF LIGHTNING THROUGH A TREE, CAUSING SPLITTING OF THE TRUNK AND DESTRUCTION OF LIMBS.

FEEDING IN YARDS.

A Satisfactory Grain Trough When Fattening Cattle Out of Doors.

Fattening cattle out of doors in yards with sheds attached for shelter during severe weather is a practice growing in favor among cattle feeders. This winter for the first time in my experience I am giving the method a trial and so far am well pleased with results. The method is certainly one that sooner or later every farmer or cattle feeder must adopt on account of economy of both labor and money. In order to make outdoor feeding satisfactory racks and feed trough properly constructed are absolutely necessary. While there are a few combinations of both racks and troughs, I do not think from what I have seen of them in



THE GRAIN TROUGH.

yards about the country they meet quite the requirements of both. In feeding cattle in large numbers one is very apt to waste hay or roughage while the cattle are eating their grain. If a combination rack and feed trough is being used this is unsatisfactory.

The diagram here shown illustrates the kind of trough I am using, and in every respect it gives entire satisfaction. In beginning the construction three one foot planks were spiked together with 2 by 4 pieces, thus making the trough proper three feet wide and sixteen feet long. For legs 2 by 4's were used. The length of legs will depend somewhat upon the age of cattle being fed. Most of my cattle are two and will conveniently reach the trough two and a half feet from the ground. Across the foot of the legs 2 by 8's were spiked to hold the trough from tipping and securely braced. Around the top of the trough was spiked 2 by 6 scantling so that the grain could not be thrown out while the cattle were eating. A trough sixteen feet long will conveniently accommodate from twenty to twenty-four head of cattle.—L. C. Reynolds, Michigan, in Orange Judd Farmer.

Canned Cheese.

A good feature of canned cheese is the curing, which obviates the constant care incident to the ordinary method, for after the cans are placed in the curing room they require no further attention other than to keep the temperature low and constant. Humidity, dryness, vermin or mold cannot affect it.

East Hartford

Henry Wright, one of East Hartford's oldest residents, died very suddenly while at work, aged 69 years. Death was due to heart disease. Mr. Wright had been employed by Edward O. Goodwin in his tobacco warehouse. On the day of his death he went to work as usual. He labored throughout the early hours of the day on the ground floor of the warehouse shifting cases. About 4 o'clock Mr. Goodwin sent him upstairs to nail some cases. His hammer could be heard driving the nails plainly down stairs. Suddenly there was a lull in the hammering but no attention was paid to it at first.

The apparent stillness could not be accounted for and investigation was made. Mr. Goodwin found Mr. Wright on the floor, lifeless, with a hammer in one hand and a nail in the other.

Henry Wright was the son of the late Mr. and Mrs. Gilson Wright and had always been a resident of this town and was a farmer. Mr. Wright was never married and boarded at the home of Charles Barnes on Prospect street. He leaves one brother, William A. Wright of North Main street. He was a veteran and during the Civil War was a member of the Sixteenth C. V.

"Butting" Tobacco

The following revised instructions as to the duties payable upon imported tobacco have just been issued by the British Commissioners of Customs:

"(1) Subject to the exception made in respect of 'butting,' as stated hereafter, all leaf tobacco imported, the leaf of which is not complete by reason of the removal of the stalk or midrib or of some portion thereof, is to be deemed to be stripped tobacco, and the higher rate of duty is to be levied accordingly.

"(2) Leaf tobacco which has been 'butted' abroad is to be admitted at the lower rate of duty as unstripped, provided the officers are satisfied that the portion of the leaf removed in the operation of 'butting' does not exceed one-tenth of the estimated length of the entire leaf, measured from the tip to the point where the midrib is assumed to have joined the main stem of the plant.

"(4) The board authorize officers concerned to allow 'butting' operations to be performed on leaf tobacco in bond."

Broad Brook

James Norris is packing tobacco in his old warehouse for Starr & Co. The tobacco is shipped to him by freight in bundles, and he packs and ships it to the firm.

York, Pennsylvania

The 1904 tobacco is being secured in large quantities right along, most of it being shipped in the bale to Lancaster packing houses. The average prices paid were nine and two cents, and was in the main seed leaf.

"*It completely meets the needs of the crop,*" is the comment of one of our customers concerning our

Bowker's

Complete Alkaline

Tobacco Grower,

and he continues "*I consider this brand an excellent one for growing a fine leaf.*"

We think so, too.

BOWKER FERTILIZER CO.,
220 State St.,
HARTFORD, CONN.

No Burley Corner

From Louisville, Kentucky, it is reported that the effort to get control of the Burley tobacco crop in Kentucky has failed. This has been due to the fact that not enough tobacco has been pooled to make a corner in the crop practical. When the promoters went to New York to arrange with the banks to advance the money, they found the bankers unwilling to take any chances.

Archibald Stewart, a Cincinnati broker, has been in New York for some time trying to interest the bankers, but according to Edwards Richie, his attorney, he has failed. In the meantime the American Tobacco Co.'s representatives have been going through the state buying as much tobacco as they have needed. The company have also bought extensively in the Louisville market.

Tennessee Acreage

The reduction of the tobacco acreage in Tennessee is being urgently pushed in the dark patch. Blank contracts have been given to the district chairmen to get the signatures of those who will cut their acreage. The dark counties of Kentucky are also becoming enthusiastic upon the question of reduced acreage, and are getting contracts signed. Following is the form of the agreement:

We, the undersigned farmers and tobacco producers of Montgomery County, Tennessee, hereby agree and bind ourselves not to plant in tobacco in 1905, 1906 and 1907 more than 7½ acres for the first 50 acres of land we own, and not more than 2½ acres for each additional 50 acres. Any farmer planting more tobacco than the above agreement forfeits the overplus to the subscribers of this agreement.

Feeding Hills

There have been no sales of tobacco of late. The entire crop is about sold and most of it has been delivered.

Starr Brothers of Enfield bought quite largely in this section. Smith from Springfield bought some lots. He has a warehouse and employs 50 hands.

The prices paid in this section will range from 15 to 20 cents. There are but two in this section that have not sold E. A. Kellogg and Arthic.

The crop is a good one, running largely to wrappers of good quality and a large percentage light.

W. S. S.

Janesville, Wisconsin

The tone of the leaf tobacco market in Janesville shows a decided improvement over many days past. Yet this business has all been done through correspondence, and with only one or two exceptions has the leaf been sold otherwise.

The New England Tobacco Grower

VOL. VII. No. 2. HARTFORD, CONNECTICUT, APRIL, 1905. $1.00 A YEAR

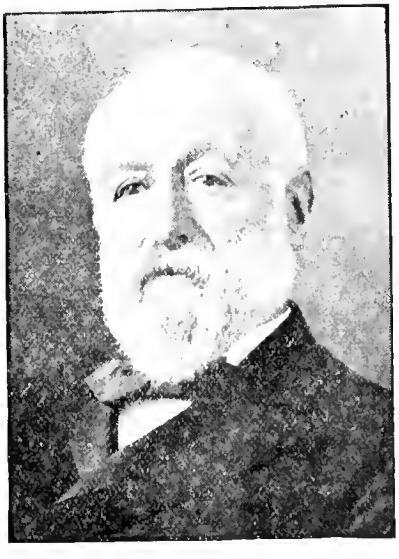
Model Packing Establishment and Warehouse

THE large tobacco packing establishment and warehouse of L. B. Haas & Co., at Nos. 146-152, State street, Hartford, has recently been extended and the most approved appliances have been installed, making the plant among the very finest in the country.

The firm lately purchased of Miss Helen S. Phillips and Mrs. Mary C. P. Lee property adjoining its home and during the fall it remodeled various buildings to adapt them fully for the firm's business as dealers in leaf tobacco. The plant now includes the large building fronting on State street, and two buildings in the rear. The first has a series of offices on the ground floor and lofts for rent on the three floors above. The second is a large warehouse with force sweat rooms, etc. The third is a mammoth assorting room.

The offices extend in a series of four from State street back. The main office comes first and is well lighted and handsomely furnished and has an ornamental grilled grating. Next to this is a waiting room and beyond are two offices. These occupy the space which for years was the office and pattern room of Pitkin Brothers, successors to Bidwell, Pitkin & Co., pioneers in the business of steam engines and steam boilers in that city. All of the four offices are finished in quartered oak and the walls are covered with green burlap. In the suite is a well appointed lavatory. A local telephone system connects the main office with the departments of the establishment.

Beyond the offices is a well-lighted sample room in which the samples of tobacco are kept in a double tier of boxes, each box having its nickle plated number. The attention to system which is a feature of the firm's



L. B. HAAS.

management is prominent here. The light is from the north and therefore is freer from shadows than a southern light. All through the building great care is given to securing a north light wherever possible. The walls are painted in a blue white shade.

In the basement of the warehouse building is the receiving room. Farmers come in from miles around with heavy two-horse loads of tobacco and drive along a gangway and deliver the crops through wide doorways. The firm has special iron trucks which will carry a ton of the leaf. The tobacco usually comes in bundles wrapped in wood fibre paper. The bundles are then marked so that the crop of any particular grower can be traced during the subsequent processes. The tobacco is kept at the right temperature, as learned from past experiences.

A brick partition wall divides the receiving room from a packing room. In the wall is a fire door, as in fact every opening in a partition wall in the building has a fire door.

A hydraulic elevator runs from the basement to the upper floors. Over the basement is a pressing room in which the tobacco cases are nailed together. The cases come in "shooks" from Burlington, Vt., and are rapidly handled. The pressing is done by jack screws. The entire plant is piped for heating from a fifty-horse power boiler.

Over the pressing room are two floors in which the force-sweating processes are applied to the tobacco. In these the temperature is usually from 80 to 95 degrees. The rooms have a complete system of steam pipes and are provided with evaporating pans to create the necessary amount of moisture.

On the fourth floor is a storage room for force-sweated tobacco having a temperature between that of the force sweat department and that of the ordinary storage rooms.

All of the four floors in the warehouse building are 135x50 feet. The force-sweating capacity is 1,400 cases at a time. The usual period for a force sweat is about six weeks.

The third building contains the assorting room, 50x80 feet in square area. Along the north side of the ceiling runs a skylight 7x80 feet, admitting a fine northern light. In the centre of the room are four skylights 12x12 feet, providing a profusion of light for the inspectors, who take the assorted tobacco from the assorters to the central table for examination.

(Concluded on page 9.)

Value of Experiment Stations

What They Have Done to Enlighten and Aid the Farmer

OF course it is now generally conceded that the agricultural experiment stations are doing a splendid work, says the St. Paul Farmer. But few will attempt to deny that such is the fact. This work relates to all the practical lines of farming. It is questionable, however, if they have done more for the farmers in any line than through the influence they have exerted on the intelligent purchase and application of artificial fertilizers.

The opportunity for exercising fraud in the manufacture of fertilizers was formerly very great. It is now more circumscribed owing to the stringent laws which have been passed in the various states in which the fertilizers are commonly used. Such legislation, however, could never secure the intelligent application of these fertilizers. It could not give a farmer to understand how much of any of the three important ingredients the fertilizer should contain which he applied to his soil. They could simply make known to him the relative quantity of each that the fertilizer contained, they could not tell him the effect of the condition of the various ingredients in the fertilizer. That is to say while they might inform him regarding the per cent. of the nitrogen in the fertilizer, they could not so well inform him as to the effect of the percentage of the ingredients that would be immediately available.

We concede that it is not possible even for an experiment station to make known to the farmer the best kind of fertilizer to apply to his land and the quantities in which to use it. Much relating to these must be learned by experience in handling land in each particular locality, but the information imparted by experiment stations has caused the farmer to undertsand very much better the general principle which applies to the fertilizers of the land.

To illustrate, a farmer who a few years ago knew absolutely nothing about the specific uses of potash and phosphoric acid respectively, may now understand clearly the end for which each is applied. He may also understand, if he is a close observer, that his soil only calls for the application of one of these, and, therefore, when he makes his purchases of artificial fertilizers he does not purchase the other ingredient, as doing so would mean applying a factor to his soil which calls for money and which the soil would not stand in need of.

While much has been done by the experiment stations in this respect, very much remains yet to be done. While there are farmers who understand these questions fully and well, yet there are many who do not understand them, and as long as this is the case the experiment stations should continue their investigations. In this way additional light will gradually be diffused. The application of commercial fertilizers will be more intelligently done and the general outcome will be for the advantage of the individual, and also for the advantage of the nation.

Cutting Tobacco

A firm engaged in the business of manufacturing tobacco and also in the manufacture of cigarettes, both factories being separated and separately bonded, but in the same building, inquired of the collector of internal revenue whether they would be permitted to cut tobacco in the tobacco factory and then transfer it under a special permit, Form 100, tobacco in process of manufacture, to the cigarette factory, properly accounting for the same on Book 74 in the other factory and on Book 73 in the cigarette factory, and also asking if the tobacco should be reported on their monthly return, Form 62, column 22.

They were advised that, under the conditions presented, the Commissioner would be willing to authorize the transfer of the tobacco as proposed from one factory to the other, it being understood that the business of manufacturing cigarettes is entirely separate and distinct from that conducted in the tobacco factory, and that separate books and accounts are kept in each factory.

The applicant was advised that credit should be taken for the material transferred on Form 62, column 12, instead of column 22, under the head of "Tobacco or sun flour in process;" that the tobacco that is transferred, however, should be of such character as to require some further manipulation and treatment after having been received on the premises of the cigarette manufactory to convert it into a manufactured and taxable product, and it must be accounted for in the cigarette factory, pound for pound, without any allowance for shrinkage or waste, on the basis of 1,000 cigarettes to three pounds of tobacco material used, and no actual transfer of material should be made until the permit on Form 100 had been secured from the collector.

Old Price-List

The changes in values and even in trade names is well shown by the following "Price list of Tobacco Leaf, London, 1817:"

MARYLAND—Fine Yellow (scarce), 18d. to 20d. per b.; Yellow (scarce), 16d. to 17d.; Fine and Good Coloured (scarce), 12½d to 13d.-15d.; Coloured, Light Brown and Leafy, 10d. to 11d.-12d.; Brown, 8½d. to 9½d.; Ordinary and Scrubs, 7d. to 8d.

VIRGINIA—Fine Irish and Town Trade Spinners 10½d. to 11d.; Middling Spinners, 9½d. to 10d.; for Fine Shag, 8½d. to 9d.; for Common Shag, 8d. to 8½d.; Fine Black, sweet scent (scarce), 11d. to 13d.; Middling Black, Part Blacks, 8½d. to 9d.-10½d.; Ordinary and Dry, 7½d. to 8d.; Stripped Leaf or Lux. fine, 12½d. to 13d.; Stripped, good middling, 11½d. to 12d.; Stripped, ordinary, short, 10½d. to 11d.; new ordinary and middling quantities, 8½d. to 9½d.; Kentucky, 8½d. to 9½d.; Kentucky, stemmed, 10½d. to 11½d.; Amersfoort (scarce), 12d. to 13d.; Brazil Roll, fine (scarce), 4d. to 4½d.; Brazil Roll, ordinary (scarce), 2½d. to 3d.; St. Domingo Leaf, 15d.; Turkey Leaf (scarce), 13d.; Havana and Cuba, 18d. to 2s.; East India Leaf, 5½d. to 6d.

Purchase of New Sumatra

The firm of H. Duys & Company, New York, have the distinction of having purchased the first lot of the new Sumatra.

March 8, two days before the first inscription of 1905, they secured out of bond 81 bales of the L. P. Deli. By this early purchase they will also be the first to ship a consignment of the new tobaccos (with the possible exception of a few sample bales) into the American market.

Andrews & Peck,
MANUFACTURERS,
Wholesale and Retail Dealers in
Doors, Windows and Blinds.
Manufacturers' Agents for Akron Sewer Pipe and Land Tile.
We make a specialty of hotbed sash.
Office, 88 Market Street,
Mill: Charter Oak and Vredendale Avenues,
HARTFORD, CONN.

STABLE MANURE
IN CAR OR CARGO LOTS
Prompt Delivery
Lowest Prices
R. M. Goodrich
HARTFORD AND NEW YORK TRANSPORTATION COMPANY
HARTFORD CONNECTICUT

The New England Tobacco Grower

HARTFORD, CONNECTICUT, APRIL, 1905

Movement of the Crop

Sales and Deliveries Make Warehouses Hives of Industry

West Suffield

At a meeting of the West Suffield farmers' progressive club recently the questions for discussion were "The cultivation of tobacco." "When and how to bud and top tobacco," and "when tobacco is in condition to harvest," which were discussed at considerable length by John W. Noble, John Gregg and Perly Lillie. The club voted to instruct their representative, James E. Hastings, to vote against any bill coming up in the legislature that will compel the dealer in leaf tobacco to stamp that tobacco when it is grown, and so strong was the feeling and so heated the debate upon this question that a petition was immediately circulated and signed by nearly every member:

"That we, the undersigned, members of the West Suffield farmers' progressive club, all of us being tobacco growers, do most emphatically protest against the passage of any bill at this session of the Connecticut Legislature which will compel the tobacco dealers to stamp the tobacco purchased by them in this state as Connecticut tobacco."

This protest was sent to the legislative committee having these bills in charge. The executive committee of the club was instructed to purchase a tobacco seed cleaner for use in the community.

W. E. Caldwell has sold the Griffin farm to Andy Gudowski.

Poquonock

These are busy days in Poquonock since the tobacco enterprises are very prosperous. The success which tobacco men met last year has led many growers to increase their acreage for the coming season. There is a general inclination, too, to raise seed-leaf, rather than Havana this year, since it has proved very paying of late.

L. P. Clark & Sons have employed over 30 men and women in their new force-sweating establishment all winter.

J. B. Parker plans to increase his shed room considerably this season.

East Hartford

Several of the big packers here and in Hartford have been advertising for hands for assorting and packing. The drouth in December led many men and women to find other kinds of employment, and experienced help is somewhat scarce.

Dennis Quinlan, a tobacco warehouse employe, who boards at D. C. Clark's, was taken sick March 12 and his physician, Dr. O'Connell, ordered him taken to the Hartford hospital.

While working in a tobacco shed for Foran brothers, E. C. Luce fell and sustained a bad scalp wound. Three stitches were taken to close the wound.

Suffield

The rain storm of early March gave the tobacco growers who have not finished taking down their crop another opportunity to get a little of it down although the storm was too cold to readily dampen the leaf. The warehouses are all at work and it is probable that it will be well into April before they shut down.

Windsor Locks

Tobacco buyers have been in this vicinity buying up some of the remaining crops that were unsold, and completed sales on several in this town. The prevailing price of late has been about fifteen cents per pound. The warehouses in this and other towns hereabouts are now hives of industry with the full force of persons engaged in handling the crops in preparation for the market.

Hartford

L. B. Haas & Company have nearly cleaned out their old tobacco. The firm employs 125 hands in Hartford, several at C. W. Porter's packing house in Hockanum, and about 55 in North Hadley, Mass. In the Hartford packing house they are handling 1904 Havana Seed. This is a good crop, and is largely from Poquonock and Sheffield.

Broad Brook

Spring is beginning to manifest itself after one of the longest and hardest winters of recent years. The farmers are busy unloading car-loads of fertilizer and are shaping up their work getting ready to prepare their fields as soon as the frost is out. The last storm helped out many who still had their last year's crop hanging and now nearly every one has his tobacco down.

E. N. Myers has closed his packing house, having finished casing the past week and most of his men are now working for Ralph Lasbury. E. H. Sloan has tobacco enough bought to keep him running for five or six weeks more. There is quite a little yet undelivered.

Copper Hill

Nearly all the growers in this section, with one on two exceptions, have taken down their tobacco crops and have delivered them.

Granby

Forsyth & Godard have delivered their eight-acre crop at Fred B. Griffin's warehouse in Bloomfield, receiving eighteen cents a pound in the bundle, it is reported.

Glastonbury

Adolph Fuller and Gotleib Bantle have delivered their tobacco to the American Tobacco Company at Windsor, receiving 28 cents a pound.

Wapping

J. Preston, the contractor, has many tobacco sheds to build. Among those whom he has contracted with are W. H. Wetherill, C. M. Johnson and Lester Newton. Others who are to build are Elisha Morton, Rufus Abbey, William Dunn, Samuel Newberry, J. E. Collins, Roy Strong, A. Stubenaugh and Wilbur Hills.

Hockanum

Several of the tobacco growers still have their crops on hand. Among them are Frank Bentley, Charles Schroeder, Peter Rival and Jacob Senkbeil.

Lowell Brewer delivered his immense crop of tobacco to W. L. Huntting & Co., the middle of March. Herbert Coburn took up a load which weighed four and one-quarter tons.

Windsor

Fertilizer is arriving for the new tobacco crop. Growers are planning to erect many new sheds the coming season. All indications point to an increase in the acreage. Broadleaf is exceedingly popular.

Ellington

Morris Kibbe has sold in the bundle. There are still a few crops of seed leaf not sold and a number of acres still hanging in the shed, one man having six. However, the farmers are not discouraged and the acreage promises to be fully as large this year as last.

East Windsor

John D. White and Michael P. Kane have sold their tobacco to Edward Welch.

Those who have sold their tobacco to the American Tobacco Company in Windsor have found crossing the Connecticut river on ice during the winter quite convenient and a saving of a number of miles.

The Acreage for 1905

East Hartford Grower Predicts an Increase of One-fifth Over Last Year

W. F. ANDROSS, of East Hartford, writes: At the present time it is impossible to say what the increase in the tobacco acreage will be for 1905. However, it is safe to say that it will be considerable. Judging from preparations it will be at least one-fifth over last year. It will be almost entirely broadleaf.

The only indication of a change in stable manure will be that more is called for. Stems are almost entirely out of the market and fertilizers will have to be substituted.

Stalks have always been used to the extent that they were available, and will this year. Nearly all stalks are used for tobacco purposes and are found to be as serviceable as stems. The growing tendency is to use more commercial fertilizers anyway, and no doubt the increased acreage will necessitate their more liberal use. Here let me say that the Connecticut Experiment Station recommends their more liberal use in connection with stable manure.

Some cut stalks with ensilage cutters, some by hand. There is no difference in their manurial value either way. Their mechanical action is beneficial to the soil but it is always necessary to use some other fertilizer with them, as they furnish only potash in their manurial qualities.

There are no new sales to report, yet a few crops remain in the growers' hands. Probably these will move soon, as the buyers seem anxious to pick up the entire crop.

Many new sheds are already contracted for.

I know of no 1904 crops unsold at present that I can enumerate, but hear that there are a few.

Of course it is too early to start tobacco beds, as the frost is not yet out of the ground. Open bed culture—the old fashioned way—is receiving more and more consideration. People begin to learn that nature has something to say, and that she has arranged a season for growing of tobacco.

The growers manifest an acute interest in the methods of seed selection and improvement as promulgated by Prof. Shamel, and his methods will be universally adopted the coming year.

The Tobacco Grower asks, Have onions ever been tried with tobacco? Yes, always, but in only a small way. Tobacco growers are not advised to grow onions while tobacco is as readily salable as it is now, or while it is bringing present prices. It costs as much to manure an acre of onions as tobacco. It takes about the same work from start to finish on one as it does the other. Onions, with careful culture, will produce $400 per acre. Tobacco will, at present prices, produce more; onions require harder work than tobacco during the hours actually employed. When onions sell for 75 cents there is a profit. When they sell for 35 or 40 cents there is a loss. This place is not looked to by the market for a supply. Until a larger scale is adopted, better market channels opened and more general attention given to the subject, it is better to let onions alone. The world looks to this section for fine tobacco not onions, leave them to soils unsuitable for tobacco. They will grow where tobacco will not. I have seen hundreds of acres of tobacco land turned over into onions with beneficial results, but there the land was not producing fine tobacco. While onions at 50 cents per bushel were thought to be a better crop. Some of our growers received 42 cents for their tobacco in 1904. It would be useless to advise them to experiment with onions.

The use of stable manure is necessarily on the increase and let me advise farmers to get it on to their land at the earliest possible moment. With the facility for producing; it and the railroad complications existing, somebody is going to be disappointed this year. There is no more manure than last year, if there is as much. This commodity is continually decreasing.

Moses Krohn

Moses Krohn, the president of the Miami Valley Leaf Tobacco Co., and one of the most prominent members in the cigar leaf trade, has died at the home of his son-in-law in Avondale, Cincinnati.

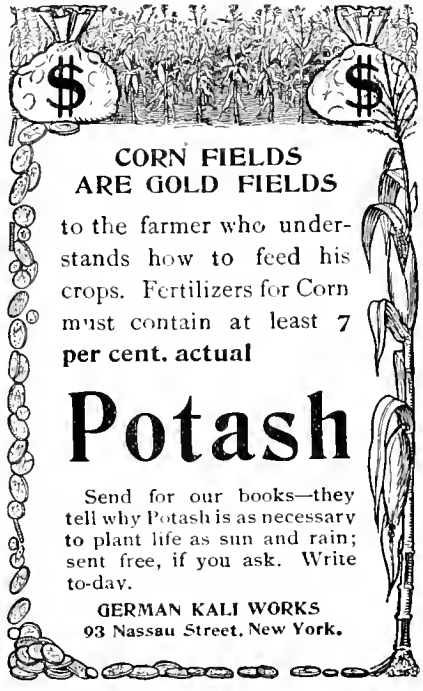
He was sixty-five years old, and had been identified with the trade ever since his arrival in this country. For many years he was head of the cigar manufacturing firm of Krohn, Feist & Co., which firm went out of existence some eight years ago. Then Mr. Krohn formed the Miami Valley Leaf Tobacco Co., handling Ohio tobacco, with headquarters at Dayton. Stanley Krohn, a son, is in charge there, and the father maintained the office in New York.

Mr. Krohn was also heavily interested in the growing of tobacco at North Bloomfield, Connecticut. At the convention of the National Cigar Leaf Tobacco Board of Trade, held last May, he was elected vice-president, but upon the resignation of J. Friedman, who had been elected president, he also declined his office. He has, however, been active in the legislative work of the association.

The deceased was a brother of Lewis Krohn, for many years one of the prominent retailers in Cincinnati, who, several years ago, withdrew from business and was succeeded by his two sons, Irwin and Charles.

Naubuc

Elmer Twillcott has sold and delivered his crop of tobacco.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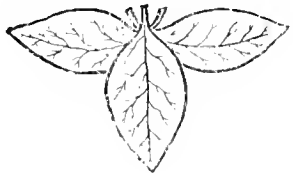

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A Live Farmers' Club

West Suffield Growers Discuss the Philippine Question

THE preceding meetings of the West Suffield Farmers' Progressive Club have been most interesting, but the meeting of mid-March was a record-breaker. The subject of "Lime on tobacco land" was discussed by William Pinney, a director in the New England Tobacco Growers' Association, whose remarks were full of meat and furnished food for reflection. Herman Ude entertained the club with his experience with the Hillman tobacco curer and the other artificial methods to prevent pole sweat.

The Philippine tobacco question received attention, and the proposed reduction of duty on Philippine tobacco into this country. This question of reduction of duty is viewed with alarm by the tobacco growers of the vicinity. Sumatra tobacco is imported into the Philippine islands at 22½ cents a pound duty. With the proposed reduction on Philippine tobacco to 50 cents a pound into this country nothing is to prevent the Philippines from importing Sumatra tobacco and reshipping to the United States, thus making a duty on Sumatra tobacco landed here 72½ cents a pound, as against $1.85 a pound imported direct from Sumatra. It is the purpose of the club to interest the tobacco, growing towns of the Connecticut valley in this question and to endeavor to obtain united action and protest against any reduction on Philippine tobacco imported into this country.

The protest of the cigar makers' international union in printed form was read. It represents the protest to the tariff committee at Washington of 47,000 union cigar-makers against any reduction of duty on Philippine tobacco. A good cigar can be bought in Manila for one cent apiece, or from $5 to $10 a thousand. Under the proposed reduction cigars could be laid down at San Francisco for $17.62 a thousand, and the higher grades from $4 to $6 above this price, which will mean financial distress in all the tobacco-growing sections.

East Hartford

D. L. Bryan has sold his fine crop of seed leaf to Mr. Graham of New Milford and delivered it Wednesday. Price 28 cents.

Michael Quinn has sold his tobacco for 20 cents.

The tobacco warehouses are all in operation. At the present time there are only a few hands at Goodwin's. Mr. Goodwin has purchased 900 cases and hopes to buy more. In case he does he will increase the number of hands.

The "damp" on March 18 enabled the growers who had considerable tobacco hanging to take it down. It is expected that from now until the tobacco is all delivered, it will move to the warehouses lively.

The writer learns through a responsible tobacco grower that the highest price paid in this vicinity for the 1904 crop was 42 cents. This was paid by Fred Graves of New Haven to John and Oliver Jones of South Windsor for their fine crop of broadleaf, and that George W. Bancroft of Hillstown received the same price. Mr. Graves is a manufacturer as well as dealer. Orlando Gilman received 40 cents. Quite a quantity was sold in South Windsor for 36 to 38 cents, the buyer having been L. L. Grotta of Warehouse Point, one of the best buyers this season.

Among the number who are contemplating the erection of sheds are Robert Shaw and H. Deming. Mr. Shaw's shed will be 30x45 feet, and Mr. Demings 30x75.

H. C. Church sold his tobacco last week for 34 cents.

Inoculation for Alfalfa

Experience in Indiana Proves Necessity of Inoculation Even on Fertile Soil

I WISH to say that inoculation is absolutely necessary to alfalfa, whether the soil is fertile or not. My experience in Indiana has proved this, and the experience of others has been the same.

I sowed my first alfalfa eight years ago on the richest black soil on the farm. I did not inoculate. I had a fine stand of alfalfa for six or eight months, and then as the plants had exhausted the nitrogen of the soil (I suppose), they began to die; at twelve or fifteen months I thought my alfalfa was a total failure. It is thin, today, and all my alfalfa is thin that I did not inoculate; while that which I did inoculate is thick on the ground. Eight acres that I sowed May 20, 1904, was keeping the fifty pigs and eight calves, in July, and has kept 175 sheep two weeks, from August 1 to 15, and since October 3 it has grazed eighteen Hereford cows except one day, when ground was too wet. Besides this, it has kept the fifty pigs all summer, and eight large hogs since August 1. I mean to keep the cows on this piece until they graze it down close to the ground, which will still take a week or longer. I inoculated this piece heavily, using six gravel bedfuls of soil on the eight acres. The alfalfa plants are very thick and have tillered out wonderfully, while the roots are so firmly and deeply set that a man cannot pull them out of the ground. The plants are so sturdy that the large Hereford cows do not injure them by grazing or trampling them.

I think much is due to the heavy inoculation of this piece. I came near losing twenty acres of nice alfalfa when it was one year old (even after it had made one nice crop of hay), because I did not inoculate it. At least, it did splendidly after I did inoculate it finally. I saw that I must do something or lose my alfalfa, for it was dying. So I picked up courage, and, in spite of the jokes of the neighbors, I sowed several wagon loads of soil from my oldest alfalfa field on this twenty acres, and I know it has paid me handsomely. Last year after inoculation this field made two nice crops of hay, and this year it has produced three crops, and the fourth is knee high on an average now, and I mean to cut it next week for hay, the fourth time. Sterling R. Holt, Indianapolis, sowed three acres of alfalfa last year, and he cut a nice crop of hay in early summer; but this is the only crop he has cut this year. He did not inoculate. About one month ago he ordered inoculated alfalfa soil from me, and I shipped him 6,200 pounds. Mr. Holt was up to see my alfalfa in June, and he said his three acres looked just as well as mine did, and he did not think it necessary to inoculate it, but his alfalfa finally did as my twenty acres did—it almost died. Then he inoculated it. I would suggest that every man should watch his alfalfa patch and inoculate it before it suffers too much; or better inoculate it in a few weeks after plants are up, and keep it growing rapidly, thus helping it to feed on the free nitrogen of the air. There are millions of pounds of this that can be had "free for the asking" if you set your alfalfa trap rightly and bait it with alfalfa bacteria.

Pardon me for this long drawn out article, but I want to make another suggestion, and that is that farmers plough up some of their permanent blue grass pasture and sow it to alfalfa; thus they will soon have both blue grass and alfalfa on the same ground at the same time. The blue grass feeds nearer the surface than the alfalfa and does not interfere with the latter. It soon makes an earth mulch, and retains the moisture in the ground. The alfalfa sends its roots down to great depths, and it also feeds upon the nitrogen of the air, storing it up in the soil, thus helping the blue grass. Where I have plenty of blue grass with alfalfa I do not have to disk any, as the blue grass mulches the ground (to retain the moisture as above stated), and it also prevents weed growth when the alfalfa is mowed close to the ground. The alfalfa will grow through the hot dry months while blue grass is dormant. You can thus have fine pasture through drouths, as the alfalfa roots will go to water if they have to go fifty feet or even one hundred feet to find it. Alfalfa roots, it is said, will go through almost anything except solid stone. Professor Wiancko, of Lafayette, Ind., says they have passed through hardpan and several feet through hard gravelly clay at Purdue experiment station. If any of your readers have little sickly alfalfa let them try inoculation, no matter how rich their soil. Sweet clover soil will inoculate altalfa; but this is dangerous, as the seed is in the soil, and if sweet clover gets a start it cannot be destroyed, I am told; and it is a weed. No stock will eat it.

Leaf for Soldiers' Homes

A revenue collector states that a firm of leaf dealers desire to be advised if they may make sales of leaf tobacco in hogsheads to National soldiers' homes or the homes provided by the several states for veterans, free of tax, the tobacco to be distributed to the inmates without cost to them for their individual consumption or use.

The collector was advised that this being a new proposition it would be taken under consideration by the commissioner, and a reply given him at an early date. It was suggested that, under existing laws, the institutions named could procure leaf tobacco in any quantity desired in its natural condition as cured on the farm from the farmer or grower producing the same, without the payment of tax, and when such tobacco should be used within the limits of the institutions referred to, and not sold or removed therefrom as a manufactured product, no tax would accrue.

A Double Crop

Two crops of tobacco from the same ground the same season is a new possibility in agriculture in Arkansas discovered by a planter near Rison last season.

The quality of the first crop is said to be as fine as the first grade in the tobacco belt of Kentucky, and the second crop, which has never been a success in the Blue Grass state, is only one grade below the first produced at Rison.

M. W. Cravens, a Kentucky tobacco raiser, who began his experiments near Rison two years ago, found that the plant would ripen in from 70 to 85 days, which is a much shorter time than is required in Kentucky. It occurred to him that he could produce a second crop, as frost did not come until late in November. The experiment proved more of a success than was at first anticipated.

Tobacco Buyer Sued

L. R. Lobdell of East Granby has had an experience with tobacco buyers similar to those which have been a cause of complaint by many other tobacco raisers in this section. Early last fall representatives of Kaiser & Boosberg of Buffalo, N. Y., called on Mr. Lobdell and contracted for the purchase of his twenty acres of tobacco at 23 cents a pound. When it came time for the delivery of the tobacco the firm accepted five acres but refused to receive the remaining fifteen acres, and Mr. Lobdell brought suit for damages of $6,000.

The amount claimed for damages was afterwards reduced to $1,800, as Mr. Lobdell sold the tobacco for 17 cents a pound and he seeks to recover the difference between 17 cents and 23 cents for the fifteen acres.

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NEW HAVEN, CONN.

Represented by **CHAS. W. SCOTT, Greenfield, Mass.**

Confiscation of Sumatra

Blow Delivered to What is Believed to Have Been Ingenious System of Smuggling

IN the confiscation and sale of 943 pounds of Samutra at Detroit, and the indictment of B. Hyman, leaf importer of 170 Water street, and his brother and salesman, Louis Hyman, in New York, the government believes it has delivered a strong blow to an ingenious system of smuggling, which has long puzzled the custom house authorities.

In the present case the facts as disclosed are as follows:

The tobacco in eight bales was imported by B. Hyman in 1903, and thereafter withdrawn in bond and exported to Montreal and invoiced to Louis Hyman. Here, according to the customs weightmaster, who has turned state's evidence, the latter was approached by Louis Hyman, who induced him to give a false certificate that the eight bales weighed 90 pounds. The tobacco was then withdrawn from the Montreal Custom House and shipped to Ecorse, Mich., via Detroit, through a clerk of Hector Prevost, a Custom House broker.

At Detroit, Alonzo Burrows appeared to receive the tobacco, which had run the lines safely on paying duty on 90 pounds, the customs officials relying upon the Canadian certificate of weight. At Ecorse, George Clark, who showed an invoice from Hyman, helped receive the tobacco and began to ship it to Brooklyn, N. Y., when he was arrested and the tobacco seized by the Treasury agents. An investigation was held, the tobacco condemned to be sold and warrants issued for the two Hymans, Burrows and Clark. B. Hyman was arrested in New York and gave bail to appear for trial. Burrows and Clark were arrested and bailed. Louis Hyman has not been apprehended up to the present, but has promised, it is said, to deliver himself up to the federal court.

The Canadian government held an inquiry. The weightmaster confessed and turned state's evidence and an information was laid against Louis Hyman.

The tobacco when sold brought $2,000. The government agent who unearthed the crime and followed it up to a successful termination was Inspector Lewis.

When seen by a representative of Tobacco Leaf, B. Hyman said: "I have nothing to tell. I shipped the tobacco to Montreal in due course of business, and of the rest I know nothing. I was arrested and gave bail. I have not been indicted in Canada, or if I have been, I have not heard of it. I don't know what my brother has to say, as I have not seen him or heard from him for a long time."

Dockweight Clause Holds

The United States Circuit Court, Judge Platt presiding, has rendered a decision, adverse to leaf importers, in the case of the American Cigar Company vs. United States, involving an important phase of the dockweight question.

In this case the importers claimed the right to withdraw leaf tobacco on the basis of its weight on withdrawal because of the fact that section 20 of the customs administrative act of 1890 was amended by the act of December 15, 1902, so as to provide for the payment of the same duties on merchandise withdrawn from customs bonded warehouse that would have been paid had the goods been imported on the date of withdrawal.

This is acknowledged to be a very ingenious contention, and one that might have prevailed but for the fact that the act of December 15, 1902, relates solely to rates of duty and not to weight of merchandise.

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HARTFORD, APRIL, 1905.

NEW ENGLAND WRAPPER

WHILE various foreign countries have made their rise in the cigar wrapper world, and passing fancies of the smoking public from time to time, shift preferences from one district to another, it is worthy of remark that the tobacco-growing territory embraced in the Connecticut and Housatonic Valleys hold the lead for intelligent research and steady advance in cultural and curing methods.

The intrinsic value of the New England wrapper, remarkable always for its neutral flavor and free burning qualities, remains unchanged, but with improved ways of fertilizing and of handling the crop, there has come about an increase in yield per acre and greater certainty as to colors and curing.

Where other countries making a specialty of wrapper leaf are obtaining their profits from the use of cheap labor, New England bases its prosperity on intelligent, skillful manipulation of field and shed, and manages to make money in spite of the high price of labor and the practically uniform working day of ten hours. The bold use of fertilizers, the investment and annual expenditure of large amounts of capital, combine to make of tobacco culture in New England a true type of modern agriculture.

The progressiveness of those who conduct this industry is everywhere recognized. The work of the Connecticut State Experiment Station under Dr. E. H. Jenkins, has become the standard on tobacco fertilizers and leaf tobacco investigations in every country in the world where attention is given to such things. The number of subscribers to The New England Tobacco Grower, residing in foreign countries, is also evidence of the widespread interest in New England ways and in the leaf tobacco field.

THE PHILIPPINES

IN spite of the efforts of Secretary Taft, the Curtis bill for the reduction of duties on Philippine products, was left without being acted upon when the House of Representatives adjourned, and the islanders will have to continue under present conditions until at least one other session of Congress has arrived.

The controversy over the Curtis bill seems to have demonstrated one thing, and that is the remarkable versatility of the Filipino under his present local influences.

This morning the Filipino will be bushwhacking and giving sharp employment to the American military; this afternoon he will be clamoring at the doors of the Manila cigar factories, seeking work at ten cents more or less per day; and this evening at a Mugwump mass meeting in the Manik theatre he will be demonstrating to the cheerful municipal officers such "facts" as the following: That there is no available labor supply to increase the output of the Manila cigar factories.

That if the output is not increased, through better trade relations with the United States, there can be nothing less than starvation for the countless cigar makers now seeking employment in the Philippines.

That the leaf tobacco grown in the Philippines is so inferior that it could never compete with American grown cigar leaf.

That the Philippine leaf tobacco is so fine that it need only be known in the United States through the further reduction of duties, to be so appreciated that the demand of the American market would insure a tremendous trade for the Manila factories and merchants.

That anything inconsistent with the foregoing arguments for Philippine free trade, ought not to be made public.

With such ready proof at hand, with facilities for impressing some side of any argument upon the public and their representatives- the advocates of lower Philippine tariffs have such strength at Washington as to arouse every friend of the American industries involved to the necessity for constant work against the free trade movement,—for all these propositions look toward ultimate free trade.

The season will count for a good deal, but it is well to bear in mind that it is usually the man who starts out with thoroughness even in the beginning of the seed-bed, who comes out at the close of the year with the heavy yield of sound, acceptable goods, the kind that sells for the prices which make tobacco-growing a pleasure.

Broadleaf and Havana

Within the memory of many New England tobacco men of the present day, broadleaf at one time was the predominant tobacco in districts that are now raising Havana almost exclusively. Gradually farmers began to supplant broadleaf with Havana, this being encouraged by the buyers. Now the tide seems to be setting in the other way. During the past season or two the switching over to broadleaf has been accelerated by the high prices received for that type.

With broadleaf selling at 28 to 38 cents per pound in East Hartford and Windsor, and Havana ranging all the way from 12 to 24 cents in the other Connecticut and Massachusetts districts, it is not to be wondered that growers are partial to the first named crop. Although they grumble considerably at the extra labor and care needed in turning out broadleaf, the greater yield per acre and better prices prove too attractive to be resisted. Even the buyers who are always seeking to encourage the tobacco acreage are somewhat doubtful of the wisdom of an undue turning to broadleaf. One Hartford dealer stated the other day that if the revival of broadleaf be so pronounced throughout the Havana sections of the valley as is indicated, he would not be surprised to see the latter change places with broadleaf and outselling that type of tobacco.

A leading grower in the Enfield district says that the broadleaf fever is simply one of the usual "fads" that is striking the valley, and he is a little skeptical of its permanency. "I remember about twenty years ago," said he, "how all buyers wanted dark leaf, and we had to cater to their wishes. In more recent years they began to rave over spotted leaf, and we used to try to please buyers by sprinkling Havana to make it imitate Sumatra. Now the buyer is clamoring for broadleaf and light wrappers, and it is a matter of interest to me how long the present fad will stay in."

Tobacco and Beets

Out in Rock County, Wisconsin, many farmers are reported to be shifting their work from binder tobacco to sugar-beets. Beloit is at the centre of this change.

New York View

Attitude of the Tobacco Leaf on the Report Favoring Curtis Bill

COMMENTING on the Curtis bill, the New York Tobacco Leaf states:

The Curtis bill, which provides that tobacco and cigars from the Philippines shall be admitted into the United States on payment of only 25 per cent. of the Dingley rates, failed of passage in the House; and it is interesting to note that among the members who boosted it along to the extent of one vote were Messrs. Payne of New York, Dalzell of Pennsylvania, Grosvenor of Ohio, and Hill of Connecticut. These gentlemen are all sons of tobacco-producing states, and it is well for constituent voters in the tobacco trade to know where their representatives stand on a measure that "strikes home." The four representatives mentioned went squarely back on their home industries, and upon their professions of loyalty to the principles of protection, and cast their ballots for what is practically a free-trade measure.

There are some farcical aspects of the matter that would go far to relieve it of its unpleasant features were it not for the fact that nearly every Republican member of the committee has been so brow-beaten by the administration that he does not hesitate to threaten the representatives of the sugar and tobacco interests that the next Congress "will certainly provide for the free admission of all Philippine products." The principle of protection is to be abandoned so far as sugar and tobacco are concerned, but it is to be maintained for the benefit of Mr. Dalzell's steel constituents and Mr. Grosvenor's wool-raising farmers.

The men engaged in these two great trades have been warned, and they will not be idle during the coming congressional recess. If the Dingley duties are to come off from sugar and tobacco, a good, healthy public sentiment in favor of reducing the rates on iron, steel, wool, glass and lumber and the products of a hundred other protected industries can be created before the beginning of the new Congress.

If the Dingley tariff is to be revised, the sugar and tobacco trades will be justified in suggesting that the cut should be made all along the line, and that, if sugar and tobacco must be produced on a free-trade basis, those engaged in those two industries are entitled to supply their necessities in the way of food, clothing and such luxuries as they may be able to enjoy, on an equally low-tariff basis

Favor Tobacco Label

Windsor Locks Growers Sign a Petition to the Legislature

TOBACCO growers representing the annual cultivation of 400 acres of the leaf in Windsor Locks have signed a petition which is to be presented to the General Assembly asking that a law be enacted for the protection of the reputation which has been earned by Connecticut tobacco. The petition was circulated by First Selectman Leslie C. Seymour, an extensive grower, and practically every grower in the vicinity signed the bill without hesitation.

The proposed statute provides that all growers of tobacco in Connecticut shall furnish to purchasers suitable tags with the seal of the state and the words "Connecticut tobacco" printed thereon, the tags to be attached to the bundles when sold by packers to dealers in the trade. This applies to the sale of all Connecticut tobacco whether it is sold to be packed in or outside of the state.

The tags are to be furnished to the growers at the ratio of one tag to every 300 pounds of tobacco grown, and they shall be given by growers to packers within ten days of the date of sale. Town clerks are to make annual reports of such statistics to the secretary of state. A fine of $50 is imposed for violations of the act.

"The main object of the bill," said a large grower, "is to prevent inferior tobacco from being sold as the Connecticut product. During the past few years large quantities of tobacco, which was little better than cabbage, has been bought in Massachusetts towns and shipped to storehouses in this vicinity by New York packers. It has been held here for a time and then sold to the trade as Connecticut tobacco. If it has not been really represented as tobacco grown in this state, the fact that it has been shipped from Connecticut warehouses has led the buyers to infer that it was raised in this state. This practice has tended to discredit Connecticut tobacco in some quarters and the proposed legislation is needed to put a stop to it.

"I know of one New York house that played this game for over five years and then had to go out of business The men made a fortune at the game, however, while it lasted."

The bill, which was introduced by Representative Connor of Enfield, has been referred to the agricultural committee

Model Packing Establishment and Warehouse

(Concluded from page 1.)

When a reporter visited the room the hands, mostly young girls, were at work on Havana Seed tobacco.

Here the sizing is in eight different lengths, the leaves being dropped through sizing racks of from fourteen to twenty-eight inches.

The ventilating is a specialty. In some assorting places in the country the air becomes foul with exhalations and choked with dust, but here there is a modern, up-to-the-minute system, giving a circulation of pure, fresh air. At evening, the floor, which is of brick, is washed down with a hose. The air is thus charged with moisture and the leaves are pliable and moist for handling the next day. The department is provided with a cloak and hat room and liberal toilet appliances.

The firm lines its tobacco cases with paper, thus affording manufacturers of cigars the advantage of lessening the loss of breakage in transportation. The cases are also tagged according to a simple and yet comprehensive system. The cards give the year of the crop and the variety, for instance "1904 Havana Seed" They have the number of the case, the gross and the tare weights, the number of the lot, the grade, the name of the employe packing the case and the date of the packing. Thus any grower's tobacco can be traced to the manufacturer and should any complaint come the grower responsible can be determined.

L. B. Haas was junior partner in the well known oldtime firm of Cassins Wells & Company. Mr. Wells died in 1884, and in 1886 Mr. Haas purchased the interest of his deceased partner. In 1890 Benjamin L. Haas was admitted to partnership. The latter had previously been connected with the house some six years. In 1895 W. P. Haas was admitted to the firm. Both are nephews of L. B. Haas.

Windsor Locks

Local tobacco growers are already beginning to prepare their beds for cultivation, and Fred Thrall has already planted some tobacco, which will be preserved from the cold by means of a large heating machine.

The tobacco is now all assorted, and although some of the buyers have backed out of their agreements to purchase, the bulk of the crop has been sold.

South Glastonbury

Gilbert Demar is making improvements on his house and when completed will build a large shed.

Westfield

George N. Kent sowed a tobacco bed last week, and already has plants up which seem to be in fine condition

TOBACCO LAND TO RENT.

TOBACCO LAND ON SHARES I offer Tobacco Land to rent. Sheds for ten acres Apply at once, in person. Chas. F. Fowler 140 Union St., Westfield, Mass.

The Leaf in Baden

Grown Chiefly in the Valley of the Rhine

THE tobacco production of Baden and Alsace-Lorraine is the subject of a brief but interesting report received by the Department of Commerce and Labor at Washington from United States Consul Joseph I. Brittain, at Kehl, Germany. Mr. Brittain says:

"In the Grand Duchy of Baden during 1903 there were engaged in the cultivation of tobacco 35,091 small planters who had under cultivation 16,610 acres, chiefly in the valley of the Rhine. Many of the plots contain but a few square rods of land, cultivated by men and women working side by side in the fields. The total value of the crop harvested in 1903 was 6,476,749 marks ($1,541,466). There were 848 less acres of land under cultivation than in 1902, and 2,327 fewer planters engaged in the business, and the decrease in the value of the crop was 1,652,896 marks ($393,389). The leading causes for this decrease were the difficulty in obtaining young plants and the unsteady condition of the tobacco market. While the crop of 1903 was below the average the quality was good, and the planters realized an average price of a fraction over five cents a pound when the tobacco was dried. The 1904 crop has not been marketed, but will be less than that of 1903, as there were 903 acres less planted.

"In Alsace-Lorraine 3,456 acres were planted in 1903, yielding 7,810,582 pounds which sold at an average of 5.7 cents a pound. The quality of the tobacco in Alsace-Lorraine was not very good, and the indications are that the crop in 1904 will be considerably less than that of 1903, as the area planted is 3,348 acres less.

"The farmer or planter is not obliged to pay any tax on his tobacco, but as soon as it passes out of his hands an excise duty of 45 marks per 100 kilograms ($10.71 per 220.46 pounds) must be paid. Many of these small planters or farmers handle their tobacco in a very primitive manner."

Philippine Tariff Bill

The Provisions Relating to Import and Export Duties on Tobacco

THE Payne bill revising the tariff on goods entering the Philippines became a law in the closing hours of the Congress which adjourned at noon on March 4. Inasmuch as the "legislative day" of March 3 lasted until noon of March 4, the new law will take effect at the beginning of business on May 3, or sixty days after its passage.

During the discussion of the measure in the Senate certain minor amendments were made, but none of these affects the features of the tariff law of interest to the tobacco trade. Below will be found the provisions relating to import and export duties on tobacco:

IMPORT.

364. Tobacco. (a) In the leaf, unmanufactured, net weight, kilo, fifty cents;

(b) Manufactured, net weight, kilo, one dollar.

EXPORT.

403. Tobacco, manufactured, of all kinds and whatever origin, one hundred kilos, one dollar and fifty cents.

404. Tobacco, raw, grown in the provinces of Cagayan, Isabela, and Nueva Vizcaya (Luzon Island), one hundred kilos, one dollar and fifty cents.

405. Tobacco, raw, grown in the Visays and Mindanao Island, one hundred kilos, one dollar.

406. Tobacco, raw, grown in other provinces of the archipelago, one hundred kilos, seventy-five cents.

Certificates of origin of raw tobacco may be required by the customs authorities when proof of the place of production is necessary:

Provided, That the rates of duty levied, collected, and paid upon products of the Philippine Islands coming into the United States shall be less any export duty or taxes levied, collected, and paid thereon upon the shipment thereof from the Philippine Islands, under such rules and regulations as the Secretary of the Treasury may prescribe; but all articles the growth and product of the Philippine Islands admitted into the ports of the United States free of duty, and coming directly from said islands to the United States, for use and consumption therein, shall be exempt from any export duties imposed in the Philippine Islands.

Foreign Imports

The imports of leaf tobacco at the port of New York in 1904 amounted to 101,594 bales of Havana, 40,695 bales of Porto Rico.

Fertilizer for Grass

The Rhode Island Experiment Station has been conducting some excellent experiments with fertilizers on grass. The following mixture is suggested per acre: 200 pounds muriate of potash, 350 pounds nitrate of soda and 500 pounds acid phosphate. This will seem like a heavy dressing for an acre of grass to many, yet the returns showed that it was more profitable than a smaller amount. All those chemicals are soluable, and this, we are convinced, is the way to fertilize grass lands. We would use on the grass only the chemicals which dissolve in water.

WANT ADVERTISEMENTS.

Advertisements under this head cost one cent a word each time; no advertisement taken for less than twenty cents; cash or stamps must accompany orders, which should be received by the 25th of the month.

WANTED TO PURCHASE—Second hand tobacco baling press. Box 38, care of New England Tobacco Grower.

WANTED—Distributer for the output of a small cigar factory making a specialty of $25 and $30 goods. Box 34, Care The New England Tobacco Grower.

WANTED—Second-hand green bone cutter D. L. B., Box 19, Rockville, Connecticut.

FOR SALE—Canadian hard wood ashes Try this fertilizer. George Stevens, Peterboro Canada.

JENKINS & BARKER,

Successors to Col. Charles L. Burdett.

Patent and Trade Mark Causes.
Solicitors of United States and Foreign Patents, Designs and Trade Marks.

FIRST NATIONAL BANK BUILDING,

50 State Street, - Hartford, Connecticut

Postal
$25.00
THE ONLY REAL TYPEWRITER
At a Low Price
It combines UNIVERSAL KBYBOARD, STRONG MANIFOLDING, MIMEOGRAPH STENCIL CUTTING, VISIBLE WRITING and INTERCHANGEABLE TYPE.
The Postal will be sent on 1 week's trial.
Write for our Booklet & Installment Plan
REMOVAL NOTICE
The favor which the Postal met since it first appeared on the market 18 months ago, has necessitated a larger factory, which we now have at Norwalk, Conn.
Postal Typewriter Co.
Main Office & Factory, Norwalk, Ct.
Sales-rooms 1140 Broad'y, New York
115 Dearborn St, Chicago
Reliable Agents Wanted

Trade With British Africa

A Heavy Decrease Since the Close of the Boer War

THE movement of our exports of tobacco products to British Africa during the past three years has been highly significant. The British evidently are quite willing to buy their raw material in this country, and there has been an important increase in the quantities and value of our shipments of leaf tobacco to South African ports; but our exports of manufactured goods, including cigars, cigarettes and plug tobacco, have fallen off at a rate calculated to cause dismay in the minds of those producers who have had a share in this trade. The following table shows our shipments of leaf to British Africa for the fiscal years 1902, 1903 and 1904:

Year.	Pounds.	Value.
1902	4,308,379	$409,375
1903	6,208,662	592,617
1904	7,590,325	721,403

From the above table it appears that our exports of leaf to British Africa have scored the phenomenal increase of 75 per cent. in two years, and that the value per pound has not only been maintained, but has risen slightly.

Quite another story is told by the figures representing tobacco manufacture. Prior to the Boer war these exports exceeded $1,000,000 per annum. In 1902, however, they amounted to only $891,438, and they have since dwindled rapidly, the total shipments in 1904 amounting to only $155,126, a loss of more than $735,000 in two years. The figures for the three years 1902, 1903 and 1904, are as follows:

Year.	Value.
1902	$891,438
1903	301,853
1904	155,126

That our exports still show a downward tendency is indicated by the fact that in June, 1904, our shipments amounted to only $10,487 or at the rate of about $120,000 per annum, while the total for the fiscal year 1904 was $155,126.

Durlach Bros. Win

Intelligence has been received at the New York office of Durlach Bros. at 171 Front street, that the two grand prizes for Porto Rican cigars and Porto Rican tobacco, respectively, have been awarded to their firm for their exhibit at the St. Louis Exposition.

The cigars exhibited were the corollary of the leaf display, being made at the company's factories at Caguas and San Juan, from tobacco grown on their own plantations. Seven brands were shown, each in twenty-one shapes. The higher grades were wrapped with the shade-grown leaf, an opportunity thus given for the effective exhibition of the latter in use.

The firm of Durlach Bros., a Porto Rican cigar manufacturing firm, has been in existence for six years, and its principal brands, Rigodon and Bogador, five cents; and La Monage and Lady Wallace, 10 cents, are known wherever Porto Rican cigars are smoked. For the Rigodon brand alone, since it was first put on the market, the firm has used 300,000 labels, which is equivalent to 15,000,000 cigars. The sale of the other brands mentioned has been but little less.

The tobacco section of the exhibit is extremely comprehensive, running all the way from scrap and filler to high-grade shade-grown wrappers. The latter is put up in "hands" in the Cuban style, a system which has been adopted by this in common with other progressive Porto Rican houses. The filler leaf is mostly put up in the Porto Rican style.

The firm's plantations from which the tobacco exhibited was taken is in the Caguas district, an upland section, the tobacco from which is said to be the best in the island. A peculiarity of Porto Rico is that a great difference exists between the upland and lowland crops, the latter, especially that grown near the sea shore, being of very inferior quality.

In the Porto Rican end of the business, both the factories and the plantations are in charge of Milton I. Durlach, the two other partners, Henry I. and Nathan I., representing the house in New York and on the road, respectively.

Henry I. Durlach is enthusiastic over the prospects of the Porto Rican cigar and tobacco trade. Within the last year, he says, the business of his own house has practically doubled.

Leslie W. Newberry Richard J. Goodman

Newberry & Goodman

Law Offices

First National Bank Building

50 STATE STREET HARTFORD, CONN

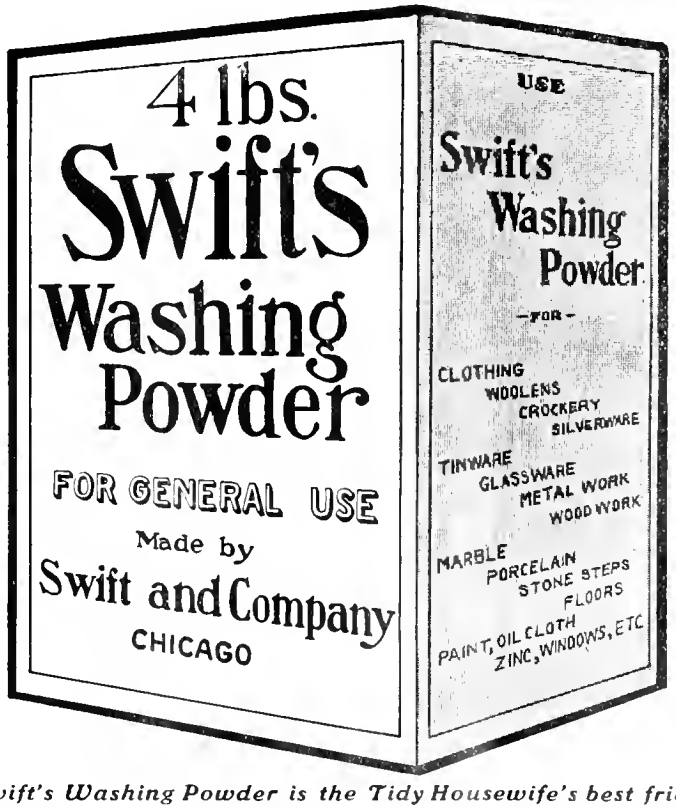
HEADQUARTERS FOR

TOBACCO INSURANCE

F. F. SMALL & CO.

95 Pearl St., HARTFORD, CONN.

14 Fort St., SPRINGFIELD, MASS.



Swift's Washing Powder is the Tidy Housewife's best friend.
Try a package and see for yourself.

SWIFT PROVISION COMPANY,

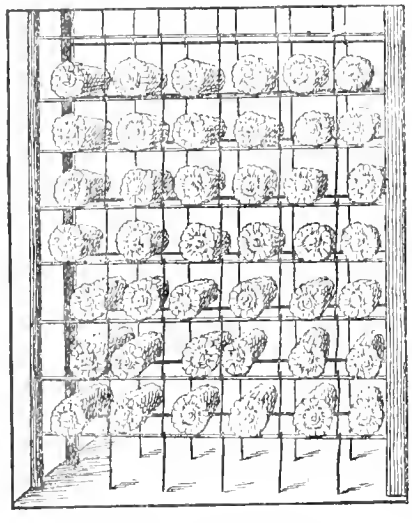
19 John Street, - - BOSTON, MASS.

TESTING SEED CORN.

A Practical Step Toward Eliminating Chance From Agriculture.

By ALBERT N. HUME, Illinois Experiment Station

When corn planting time arrives the most serious question for corn growers is that of securing seed for their fields which will be certain to grow. It may seem like a heavy task to germinate three or four kernels of corn from every ear in a bushel, and yet one man in ten hours' total time can test every



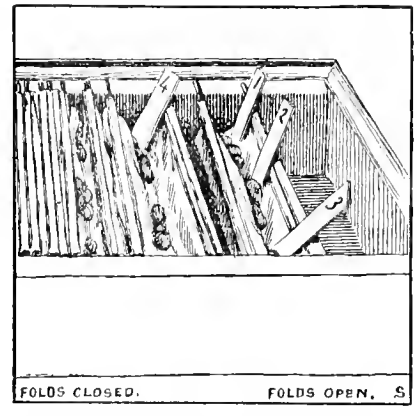
RACK OF IRON RODS AND WIRE.

ear of seed corn required to plant six ty-seven acres. Some such method is said to have been used by John R. Cisby, secretary of the Illinois Corn Breeders' association, in testing large quantities of seed corn. One kernel should be taken from the butt of the ear, at least one from the middle and one from the tip. Four kernels is enough to take from one ear for practical work if properly taken.

The four kernels from each ear must be placed in a separate group, and it is best that the group be marked or numbered to correspond with the number of the ear from which the kernels were taken. For this plan it is necessary that the ears be placed in regular order as the kernels are removed from them. A good device for arranging the ears in regular order is shown in the first cut.

One of the quickest and most convenient devices for making germination tests is that first used by Professor Goff at the Geneva station in New York. This apparatus consists of a water tight box across which are extended folds of canton flannel. These folds are suspended from wires and can be removed to dry when not in use. The box must be filled to the depth of about an inch with water, so that the folds of canton flannel will hang down enough to touch the water and thus be moistened by capillarity. The box should be about 12 by 24 inches and 4 or 5 inches deep. It may be made of wood, galvanized iron, tin or copper, and the wires can be cut from ordinary smooth galvanized fence wire.

When kernels of corn are to be tested in this germinating apparatus they are removed from the ears, placed between the folds in regular order and the folds closed together. The groups of kernels from the separate ears may be numbered with slips of paper. This numbering will not be absolutely necessary if proper care is used to have the groups of kernels correspond to the ears of corn from which they came.



PORTION OF A GENEVA TESTER

After the kernels are put in place the folds are drawn together at the top, the lid closed upon the box and the apparatus left until the kernels germinate. When put into this box the kernels will not usually suffer for moisture during the length of time of one test. This is one of the advantages of

A SUITABLE LOCATION

For Tobacco Growers

FOR any business man, professional man, or industry, is easily obtained by consulting the Industrial Department. ¶The proposition submitted will be attractive, embodying just the information desired to intelligently consider such an important matter as change of location. ¶Our monthly magazine of Southern opportunities will prove invaluable to those interested in the South.

THE LAND OF MANATEE

IS the most beautiful section of America, heretofore without rail facilities. The climate is delightful, the atmosphere salt-laden and perfumed by thousands of blossoming orange, lemon, grape fruit and guava trees and the most beautiful and fragrant of flowers. ¶A land of perfect health, ideal living, where crime, trouble and ill health are as yet unknown. Manatee booklets describe it in detail.

The most costly piece of railroad literature ever issued is the special Southern edition of the Seaboard Magazine of Opportunities,—yes there is one for you. It is unique, contains no advertisements, but hundreds of full page and half page photo gravures,—the most exquisite examples of the modern printer's art and each worthy of framing. Sent free on receipt of ten cents to pay postage.

J. W. WHITE *General Industrial Agent Portsmouth, Va.*

SEABOARD AIR LINE RAILWAY

LUTHER M. CASE,

WINSTED, CONNECTICUT,

Packer and Dealer in

Connecticut Leaf Tobacco.
Shade Grown
Sumatra in Bales.

Main Warehouse and Office, Pine Meadow, Conn.

BRANCH WAREHOUSES:

Southwick, Mass.,—Foreman, H. L. Miller.
East Canaan, Conn.,—Foreman, L. F. Bronson.
Barkhamsted, Conn.,—Foreman, L. A. Lee.
North Hatfield, Mass.,—Foreman, Willis Holden.
New Hartford, Conn.,—Foreman, James Stewart.

SUMATRA PLANTATIONS:

Pine Meadow, Conn.,	25 Acres
Barkhamsted, Conn.,	20 Acres
Southwick, Mass.,	15 Acres

Always in the market for old Tobacco if well assorted and packed. Havana Seed Wrappers a specialty, assorted and sized into thirty-two grades.

the Geneva tester over the plate of sand where the moisture may need renewing each day or even oftener. The folds are easily opened when it is necessary to inspect the kernels to count the number which have germinated.

The Newest Notion With Sweet Peas.

The crop was a complete success, while other growers in this location did not succeed at all. While I have no record of the quantity of the crop, I will say that I had a larger crop, better blooms of lasting quality, than any other grower with the same amount of ground planted. I had two awards at the New Jersey Horticultural society for these same blooms in June and July at Orange, N. J., and I know that had it not been for the inoculating of the seed I would not have been so successful.—W. J. Hesse, Newark, N. J.

GARDEN SNAPSHOTS

Plant currant and gooseberry cuttings in April.

Rake some white clover seed into bare spots on the lawn.

Set the new strawberry bed in April.

According to one of the professors, the correct bordeaux mixture should be sky blue in color, of a very fine grain and should settle very slowly.

Some weeds, like chickweed and shepherd's purse, start up very early, and you cannot get after them too soon.

Hen Manures.

Such strong manures (hen manures) are best adapted when applied to any leaf crops, such as spinach, cabbage, kale and Swiss chard. Being highly nitrogenous, they induce growth of leaf. They should be applied sparingly to fruit crops, such as tomatoes, peppers and strawberries, says an exchange.

No Thoroughfare For the Cutworm.

Everybody knows the cutworm that in a night nips short the tender growing things of the garden. An old fashioned trap is to place bits of board near the plant, under which in the early morning you may find Master Cutworm safely hidden away for his daytime slumber. But here's a later wrinkle for the small garden. You can fence the worm out from the plant with nothing more than a neat circlet of paper. Cut a strip of tar paper a few inches wide and long enough so that when bent into a collar around the plant, with the ends tightly overlapped, each part of it will be at least two inches away from the plant. Having made sure there are no cutworms already in the surface soil near the plant, sink the lower edge of the band into the soil, so as to hold it firmly. Now, why the cutworm does not climb over the barrier is a curious fact for the nature study people to clear up. Thus far nobody seems to know, only he doesn't.

IN THE HEART OF THE CITY

The central location of this Bank makes it convenient for city or out-of-town depositors.

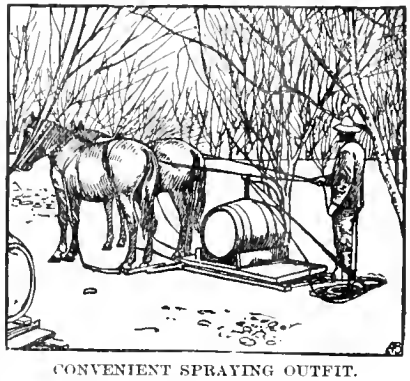
All street cars pass City Hall and the American Bank is directly opposite.

We offer depositors every facility which their accounts, business and credit warrant.

A LITTLE NOTE OF REACTION

Good Horticulturists Are Again Talking Up Oil Spraying.

With the present spraying season there seems to come a little note of reaction from the lime, salt and sulphur wash toward the use of oil for the San Jose scale. Not but that the former is still popularly used, but some very



CONVENIENT SPRAYING OUTFIT.

good authorities are again urging the excellence of crude petroleum. Dr. John B. Smith of New Jersey, speaking of experiments in the state during 1904, says a few growers used it with excellent success, and it is the only material which has not been more or less of a disappointment. As the result of observation made, the undiluted oil, a little warmed and put on in a fine spray, is advised on pear trees in preference to any other material. Good results on other fruits have been obtained with 25 per cent mechanical mixtures.

As good an authority as Mr. T. Greiner of Ohio places himself on record thus:

"When I consider all the disadvantages of the lime-sulphur treatment—the nastiness and corrosive nature of the compound, the necessity of the utmost care to prevent clogging of the nozzles and to protect the men who handle it and the horses, too—I come to the conclusion that I must stick to my old and tried remedy for the scale, the clear petroleum spray, which when properly applied and at the proper time makes a clean sweep so far as the scale is concerned with a minimum of labor and inconvenience and at reasonable expense."

The lime, salt and sulphur mixture has the advantage of controlling peach leaf curl and to some extent at least the apple scab. It seems to act also as a stimulant to clean and thrifty growth in the tree. If only one spraying can be made, apply in March or early April and cover thoroughly. The plum has been injured if sprayed too early in winter.

THE GARDEN KEYBOARD

Plant beets; it will pay.

Work some good manure well into the soil of the asparagus bed before the crowns start.

Remove the winter cover and prune the roses as soon as hard freezing weather is past.

The cutting of grafts before grafting is no good in cherries. The best way is to cut and then go and graft them right away. This is one fruit grower's notion.

Do good to yourself and give a show to that neglected but very delicate eatable, salsify, or oyster plant, in your garden this year. It takes a long season, so seed must be sown early—not too thick, for the plants do not stand crowding. Thin to four or five inches between plants.

Japanese Cane.

One item we have learned will be of untold benefit to sections just above the cane belt. Many farmers higher up have attempted to raise ribbon cane and have been compelled to quit on account of loss from our early frost. The new variety, the Japanese cane, is a true cane, smaller than the ribbon, but suckers more and will grow on poor land. It is fine for sirup and is also splendid feed for cattle of all kinds. It will stand 15 degrees more cold than ribbon cane. We think any farmer in middle Georgia, Alabama or South Carolina would do well to try some and learn of its adaptability. One gentleman told us he grew twenty-three stalks from a single eye.—Southern Cultivator.

A Southern Location

**For Your Home,
Your Manufacturing Plant,
Your Business.**

FARMS IN VIRGINIA, NORTH AND SOUTH CAROLINA, GEORGIA, ALABAMA, MISSISSIPPI, KENTUCKY, TENNESSEE.

GOOD LANDS AT LOW PRICES.

A healthy Climate, Long Growing Season and an all-the-year working Season.

The South is now making greater progress than any other section. If you would learn about its developments and the opportunities for good locations along the SOUTHERN RAILWAY, write for copies of our publications, which which will be sent free on request.

M. V. RICHARDS,
Land and Industrial Agent,
Southern Railway, Washington, D. C.

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INCORPORATED

Growers and Packers of Leaf Tobacco

Assorting and Packing for the Trade

Specialists in Selected Tobacco Seed of the Cigar-Leaf Varieties

Plantation Houses and Office at
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Address: Granby Station
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TARIFFVILLE
Connecticut

GRASS LANDS.

Advantages In the Use of Commercial Fertilizers Over Manures.

There are some distinct advantages in the use of commercial fertilizers over manure for grass lands. In the first place, the average farmer does not produce enough stable manure to thoroughly fertilize all his arable land and is obliged to sell some fertilizers.

It has been found that manures, especially coarse ones, have the effect of lessening the number of grass plants on the land, the lumps of manure suffocating, so to speak, many of the plants and consequently not allowing the greatest possible yield. A good general rule for the farmer to follow is to use barnyard manure on the corn crop, vegetables, etc., and apply commercial fertilizer to grass land. It is always best to apply fertilizers and manures very liberally to the crop preceding the grass. Then the soil will be rich enough not to require additional manurial substances at time of sowing the grass seed. If, however, this has not been done or if the last crop has made heavy demands on the soil, fertilizers must be applied at time of seeding.

If this is done in the spring the fertilizer should contain nitrogen as well as phosphoric acid and potash. A suitable fertilizer for use in this connection would be 125 pounds nitrate of soda, 200 pounds tankage, 300 pounds ground bone, 200 pounds sulphate of potash.

Top Dressing.

If the soil is in a very good state of fertility when seeded no top dressing should be needed for one to two years. In fact, a liberal top dressing might make trouble by causing lodging. But if the land has not been very well prepared or in any case after it has been seeded, say, two years, top dressing will no doubt prove profitable.

The kind of fertilizers the farmer should use for top dressing depends on whether he wants hay to sell which will bring the highest market price (timothy) or hay which will be of the greatest home feeding value (chiefly clover). In the first case he should use highly nitrogenous fertilizers, in the second fertilizers rich in lime, phosphoric acid and potash; especially the latter, because it has been found that potash is the dominant element for clover.—G. Runkle, Massachusetts.

LAYERING THE VINE.

One of the Easiest Ways of Multiplying Some of the Woody Plants.

There is hardly any one whose home domain is so small that he may not at least sit under his own vine, not to mention the fig tree, which is by no means an impossibility even at the north. The simplest way to install a

vine or a few vines of the grape is to get them from a good local nurseryman. But say that you have an accommodating neighbor with good fruit or that you already have a nice vine yourself and want to propagate it, there are few things easier. Layering is one of the simplest of horticultural operations. Its story is told so plainly by the accompanying little sketch that explanation is almost unnecessary.

Layering should be done in early spring. A cane or shoot of the previous year's growth of wood is stretched along the ground and buried throughout its entire length in a shallow trench or it may be covered in certain places, leaving the remaining portion exposed. Roots will be put forth at intervals and branches thrown up. Later the vine may be cut between these branches, leaving a number of independent plants.

Hinsdale

There will be almost 80 acres of tobacco grown in town this year.

There was no broadleaf grown last year, but one or two growers are talking of raising it this season.

Some growers put their stalks on tobacco land, while others use them on other crops. They are usually put on whole and plowed under.

W. B. Adams has recently sold his last year's crop for eight cents, W. Fales for nine cents and O. S. Higgins for 12 cents. There are but two crops, those of G. M. Wright and F. Liscom left unsold in town. No tobacco beds have been started yet, but probably will be by April 5.

South Windsor

The following sales have recently been made: Newton and Shepard to Spitzer, Charles Covell to Wildman, John White to Bogan, George Mullanite and William Driscoll to Halpin at prevailing prices. The crops of F. B. Rockwell, A. S. Clapp, D. O. Brien, M. Donovan, W. P. Bissell, Michael McGrath and Troy Brothers are the only ones remaining unsold in the vicinity. Good offers have been made, but not accepted.

The crop has assorted well, and will average from 25 to 30 per cent. light, and about the same medium. Some sweat is found, the percentage varying in different lots, caused by condition of weather when harvested, space given in hanging and means of ventilation.

"It completely meets the needs of the crop," is the comment of one of our customers concerning our

Bowker's

Complete Alkaline

Tobacco Grower,

and he continues *"I consider this brand an excellent one for growing a fine leaf."* We think so, too.

BOWKER FERTILIZER CO.,
220 State St.,
HARTFORD, CONN.

For Light Colors

Mexico Inventor Has Process for Bleaching Dark Tobacco

ALFREDO NAUWELAERS, a Belgian living in Jalapa, Mexico, has taken out a patent for a process of treating tobacco, whereby he hopes to change the dark leaves into the light colors now in style in cigar leaf. In describing his process, he says:

My invention relates to a process of treating tobacco; and the object of my invention is to change the maduro color of the tobacco leaf (whether of old or new tobacco) to a claro color without altering the essential qualities of the tobacco and without endangering the health of the user.

In carrying my invention into effect the tobacco is hung up upon pins in the first room and exposed to the direct influence of anhydrous sulfurous-acid gas, which is delivered into the room from a furnace. In a short time this gas attacks the chlorophyl or coloring material of the tobacco, and the dark color of the leaves is rapidly changed to a lighter color. As soon as this occurs the tobacco is put into an adjacent room or the flow of sulfurous-acid gas into the room is cut off, and the tobacco is exposed to the action of a bath of combined vapor and air, which is caused to rapidly circulate through the room by means of fans. These fans cause a rapid circulation of air and the vapor or steam given off into the room through a pipe.

In a boiler is put the following mixture: fifty liters of pure water, ten liters of a decoction of tobacco obtained by soaking tobacco of the same kind that is used in the first room in water, two liters of extract of origanum obtained by boiling half a pound of origanum in water, (instead of origanum any other aromatic plant may be used or any desired flavoring matter may be put in the liquid,) one-fourth of a liter of glycerine, and one liter of alcohol. When the boiler is heated, a vapor is given off from this mixture which restores the tobacco to its original condition, except that it is of lighter color than formerly. The mixture in the boiler is preferably not heated more than 95 degrees Fahrenheit. The use of the glycerine is more especially to prevent fermentation and the heating of the tobacco afterward.

The decoction of tobacco is obtained by soaking in water tobacco of the same kind that is treated, the reason being that the original flavor of the tobacco may be preserved unaltered, and a further reason being that by this means small pieces of tobacco may be utilized that would otherwise be thrown away.

The anhydrous sulfurous-acid gas attacks nothing but the coloring-matter, leaving all of the other components of the tobacco untouched, and the subsequent double bath of vapor and air eliminates completely every trace of this gas.

Canada and Cuba

Canadian importers of tobacco and other Cuban products are said to be taking important steps to develop a large direct trade with the island.

The administration Committee of the Corn Exchange at Montreal held a meeting January 17, and considered the advisability of establishing a new and direct steamship line between Canada and the West Indies. Steps have already been taken for the establishment of a line between Mexico and Canada, and there is a difference of opinion as to whether the line to Mexico should not be so managed as to cause its steamships to stop at Havana or some other Cuban port, and thus save the necessity of two separate lines, there being already a steamship line from Halifax and St. Johns to the British West Indies.

The New England Tobacco Grower

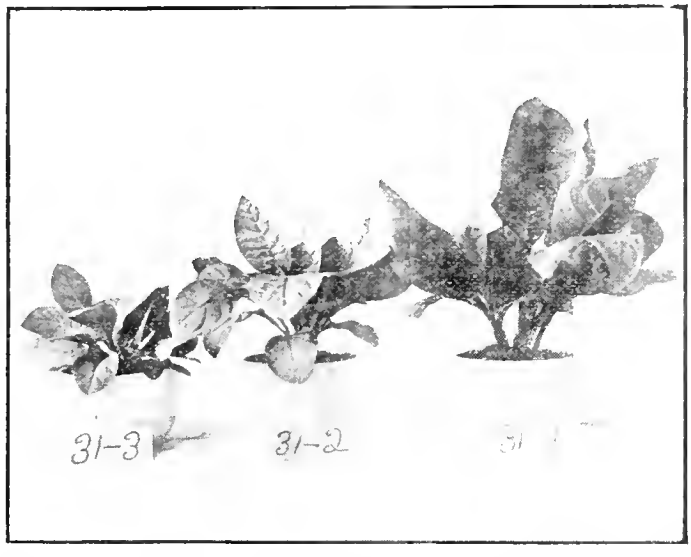
VOL. VII. No. 3. HARTFORD, CONNECTICUT, MAY, 1905. $1.00 A YEAR

Tobacco Seed Selection

By A. D. Shamel of the Bureau of Plant Industry, U. S. Department of Agriculture

THE general practical experience of farmers and the results of exact experiments with many varieties of farm crops, proves that the heaviest seed produces more vigorous and productive plants than lighter seed. This is partly because the heavy seed has the most perfect young plant in it, and the largest supply of available plant food to support the seedling until it has developed roots and leaves so as to feed itself.

The experiments which we have conducted with heavy and light tobacco seed in the Connecticut Valley, show conclusively that the heavy tobacco seed produces the best plants. In these tests, samples of seed were secured from growers who were recognized as producing specially fine types of the variety of tobacco which they grew. The varieties used for this purpose were Havana seed, Broadleaf, Connecticut Cuban and Connecticut Sumatra. Each sample was separated into three grades, with the tobacco seed separator, which were designated as light, medium and heavy. These samples were sowed in separate sections in the seed bed, and the seedlings from each individual section were set out in separate rows in the field and so labelled as to be easily distinguished from other rows during the growing season. The difference in time and vigor of germination between the different grades of seed of all varieties, was very noticeable. The light seed sprouted first, but after sprouting seemed to lose all vitality and grew much more slowly than the young plants from the heavy seed, so that the plants from the heavy seed were ready to set in the field first. Many of the plants grown from the light seed developed into freaks and irregular plants in the field, most of which were unprofitable because of the poor yield and quality of the cured tobacco. The yield of the plants grown from the light seed was very small in 1904, while the yield of the plants grown from the heavy seed was larger than that of the crops grown from the same seed not separated. The plants grown from the heavy seed were uniform in size and time of maturity or ripening of the leaves and seed.



TOBACCO PLANTS FROM LIGHT, MEDIUM AND HEAVY GRADES OF HAVANA SEED VARIETY.

The small plants were grown from the light, the medium plants from the medium and the large plants from the heavy seed. The sample of seed was separated into these three grades with the seed separator. The yield in the field was about as represented in the comparative size of the seedlings.

Many foreign tobacco experimenters have tested the light and heavy grades of seed, and without any exceptions have come to the conclusion that the grower should use the heavy seed and discard the light grades. Dr. L. Trabut in Algeria found that the light seed not only produced a small and unprofitable yield, but the quality of the tobacco from the light seed was very poor, as compared with the tobacco produced from the heavy grades of seed.

Every tobacco grower is familiar with the fact that many plants in the field flower very early, sometimes from two to three weeks ahead of the remainder of the plants in the field. The leaves of the abnormally early plants, are usually very small, or very

(Continued on page 4.)

East Hartford

F. Gehan, the contractor of Hockanum, has twenty new sheds under process of construction, the sizes ranging from one and one-half to seven acres capacity.

The dimensions of the one and one-half acre sheds are 32x32 feet. The largest shed for which he has contracted is that of Lowell Brewer, 119x32x21 feet having a hanging capacity of seven acres. Among those for whom Mr. Gehan is to build are: Mr. Pryor, four acres; C. Reardon, one and one-half acres: Harfnett, one and one-half acres; D. Reardon, three acres; W. G. Burnham, three acres; Driscoll, one and one-half acres; Hickey, one and one-half acres; T. Murray, three acres; J. Spencer, five acres; Deveritt, four acres; Fortauno, four acres; J. Lang, one acre; Lowell Brewer, seven acres; C. Yauch, three acres; L. Dush, three acres; G. Olcott, one and one-half acres and DeSopo, six acres.

Walter Simmons has contracted to build sheds for the following: H. Burke, one and one-half acres; J. Bentle, three acres; Hoff, three acres; Shaffer, one acre and J. Marsh, one acre.

Several other contractors have received orders for as many more. It is estimated that about one hundred new sheds will be built this season.

Geo. Dannerlein is still running his sweat room and has forced sweat several crops for different buyers around town.

W. L. Hunfting is still running with a large force packing the 1904 crop.

Meyer & Mendlessohn, who bought Sutter's large plant, have closed down.

Howard Ensign has three or four men assorting on a crop of tobacco put through force sweat unassorted. The tobacco came out in fine condition, having a very uniform shade.

The growers of Naubuc avenue have received two barges of New York manure. Lowell Brewer and J. Gehan have ordered one barge of New York manure to be landed at N. S. Brewer's dock.

The sales reported within the last two weeks are: Geo. Anderson and Edward Welden to Edward Goodwin of East Hartford, Wm. Behl, Thomas Carbey, Harry Anderson and Frances Smith to Stein of New York, Ira Bailey to W. L. Hunfting of East Hartford, and Cassius Brewer to Hartman of Hartford. The prices range from 24 cents to 29 cents.

Lowell Brewer, who raised 60 acres last year, intends to raise eight more acres this season.

J. Judson has retired from growing tobacco and has rented his land and sheds.

L. Dush has taken H. Cox's six acres of land on shares.

F. P. Hoye, the teamster of Hartford has drawn over 1,000 cords of manure from the city to this section. Curtiss has also carted a like amount onto the fields on this side of the river.

Last year three growers tried a new shape bed in the form of a tent, the width of the bed being 12 to 15 feet and the center raised to an elevation of nine feet. The common tent cloth was used. The seedlings were somewhat slow in starting, but when the roots got a good hold they grew vigorously and strong. At the time of setting out the plants were much hardier than those raised in the common seed bed, and it was possible to pull plants every day. In following the plants through the season it was found that they grew much better than those raised otherwise. This year these growers have made most of their beds in this manner, having been so well pleased with the results of last year.

Several farmers are trying an experiment this year on their beds by having two and three layers of cotton, removing or putting on one or two layers as the conditions of the weather require. The extra layers of cloth were found to be of great benefit during the cold nights we have had.

VINCENT BREWER.

New Milford

Practically all of '04 crop out of growers' hands, taken at prices much more satisfactory than last two previous seasons Prices ranged from 10 to 15 cents. Yield in pounds per acre very satisfactory. Price not what growers ought to have received nor what they would have received had they realized more fully how badly packers needed the tobacco. This owing to the fact of there being so little wrapper tobacco in two previous crops. Indications point to a slightly increased acreage for '05.

Wapping

Several new tobacco sheds will be put up this season according to latest reports. W. H. Wetherill, C. M. Johnson, Lester Newton, Elisha Morton, Rufus Abbey, William Dunn, Samuel Newberry, J. E. Collins, Roy Strong, A. Steubenaugh and Wilbur Hills are among those who are reported to be contemplating the erection of sheds. At Vinton Mills Henry Baker will probably put up a five acre barn. Robert Skinner and Martin Johnson will also build. There are a few '04 crops still on hand in this section, but holdings are not large.

York, Pennsylvania

Trade is admittedly quiet, but manufacturers are not perturbed, feeling confident that with continued good weather business will soon begin to brighten up considerably. In fact a good year is predicted, even though the present conditions are far from good.

Heavy deliveries of the new tobacco have been made in York and other points in the country, and at the present rate it won't be long before all the 1905 will be in the hands of the packer. Most of the leaf continues to be shipped in bale to Lancaster firms, who have been dabbling heavy this year in York County leaf.

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The Tag Plan

The New York Tobacco Leaf says editorially:

The Connecticut Legislature has pending before it a bill for the protection of its tobacco. It provides that growers shall furnish official tags to purchasers, one tag to 300 pounds leaf, the tags to be attached to the bundles.

If the bill becomes law, what will happen? The grower will be obliged to buy the tags and give them to the purchaser. The purchaser may attach them to the bundles or not. The law does not compel him. He may attach them to Massachusetts or Pennsylvania leaf. If the law forbids it being done in Connecticut, he can do it in any other State of the Union. A New York or Philadelphia packer may attach the tags to any leaf and ship this to Hartford. He is immune because Connecticut cannot legislate extra-territorially.

If the tags prove of value, they may be counterfeited wholesale in every big city, and Connecticut will have no power to prevent it. The only one who cannot escape the law is the farmer, and he will have to pay the State for the privilege of selling his own produce.

Connecticut leaf needs no tag. The quality of its best leaf is its own tag. The kind which requires a tag is the kind that no self-respecting manufacturer ever buys.

The New England Tobacco Grower

HARTFORD, CONNECTICUT, MAY, 1905

Tobacco Fertilizers

By Dr. E. H. Jenkins, Director of the Experiment Station at New Haven

THE following timely article was specially prepared for the May number of The New England Tobacco Grower by Dr. Jenkins of the Connecticut Agricultural Experiment Station at New Haven:

There is no such thing as "the best formula" for tobacco. On some very light soils, where commercial fertilizers alone have been used for years, stable manure by itself, and lots of it, 10 to 12 cords to the acre, is "the best formula." On other soils where little but stable manure has been used and humus is abundant, a good dose of lime which unlocks the inert nitrogen of the humus and a fertilizer containing phosphates and potash salts may be "the best formula."

On most of our tobacco lands, manure and chemical fertilizers are "best" when used together.

To use one formula, which has given perfect satisfaction for a long term of years, may result in slowly accumulating certain elements in the soil till there is such an excess as to injure the leaf. For instance, a fertilizer containing a good deal of magnesia if used for a term of years, might in the end cause such an accumulation of magnesia in the soil as to damage the crop, whereas if this formula after a few years had been dropped for something different, no harm would have resulted.

Again, a formula which is best in a wet, cool summer is not best in a hot, dry year.

There is a large element of chance in the use of fertilizers, because we cannot either foresee or control our weather or determine how much available plant food there is in the soil. The element of chance is reduced most, not by adhering to one formula through thick and thin, but by watching the effects of different formulas and studying their composition

Too much chlorine in the soil or fertilizer injures the burn of the leaf. An application of muriate of potash or the use of night-soil, which has been very common in Germany, where tobacco is raised in rotation, may increase the yield per acre, but is very likely to injure or destroy the burn.

Some farmers are, however, too much afraid of chlorine and object even to a small percentage of it in their tobacco fertilizers. Horse manure contains about 0.4 per cent. of chlorine, equivalent to five pounds in the cord, or 50 to 60 pounds of chlorine in 10 to 12 cords of manure, which is not an uncommon dressing per acre. But there is no trouble commonly with the burn of tobacco raised with manure. Now a ton of a tobacco fertilizer with 2.5 per cent. of chlorine would add no more chlorine to an acre than a heavy dressing of horse manure and is not likely to affect the burn unfavorably.

Large amounts of potash tend to neutralize the bad effects of chlorine. Studies made by Nessler in Germany, as well as some work done at our Station, indicate that where the amount of potash in the fertilizer and soil and hence in the crop is small, even a moderate amount of chlorine in the leaf injures its burn. On the other hand, if the amount of potash is large, a considerable amount of chlorine in the leaf may not be at all injurious.

The rule of the intelligent grower is to avoid any large amounts of chlorine in his fertilizers, perhaps anything over 50 pounds, to use abundance of potash, and not to fear small quantities of chlorine in his formula. He knows that a very small amount of chlorine is absolutely necessary for his crop.

EXCESS OF POTASH.

Do we use a wasteful excess of potash in our tobacco fertilizers? Probably we do. I know of a field where excellent tobacco has been grown for four years in succession with no other potash than the small quantity contained in cotton seed meal, 1.90 per cent., or about 48 pounds per acre. Probably from 100 to 150 pounds of potash are taken off yearly in the crop, most of which, of course, comes from the soil, well stocked with it, no doubt, from the fertilizers of past years. I know of another field where, following the advice of a fertilizer crank, soda was used one year instead of potash, with excellent results; no doubt because of the store of potash left in the soil from previous years.

But we use excessive quantities of potash as a sort of insurance premium, to guarantee a good burn in the leaf. It is reasonable to use potash liberally for this purpose. We have probably rather more implicit faith in it than it deserves. Burn of leaf is not wholly conditioned on it, as our observations on the chemical composition of good burning and bad burning tobaccos show, as well as the experiments of others.

Mr. Shamel's work in Granby shows that the leaves of certain plants won't burn, though grown in the same field by the side of others which burn perfectly. That is, certain strains of plants will burn badly even when the fertilizer is all right.

THE TOBACCO CROP NEEDS LIME.

We found, years ago, that a tobacco crop, in leaf and stalks, may take from an acre as much as 90 or 100 pounds of lime, almost as much lime as nitrogen. Growers are very careful to replace nitrogen by fertilizers, but often neglect lime. We should remember that our tobacco soils are relatively poor in lime, that the use of chemical fertilizers tends to still further deplete the lime, and that lime has important uses in the soil apart from its value as a plant food. A dose of lime on a somewhat heavy soil may lighten its texture and so improve the colors of the leaf raised on it. It corrects any acidity caused by the continued use of acid phosphates or sulphate of potash and it favors nitrification, that process by which the organic nitrogen of the soil and fertilizer are made soluble and available to the crop. Some broadleaf growers believe that they have reduced the damage done by "calico" or "mosaic disease" by heavy dressings with lime; say 1,000 to 1,500 or even 2,000 pounds per acre. Try lime this year on an acre, if you have not been in the habit of using it. Put on 1,000 pounds as long before setting as you can, and follow the leaf from that acre far enough to fully convince yourself whether it had an effect and what the effect was. And if you think of it, write me a line and tell me about it.

AMOUNT OF PLANT FOOD.

The amount of plant food taken from an acre in a tobacco crop of 1,800 pounds of cured leaf has been found at our Station to be about as follows:

	In the Leaf.	In the Stalk.	Total
Nitrogen,	65	32	97
Phosphoric Acid,	8	8	16
Potash,	89	49	138
Lime,	81	13	94
Magnesia,	25	5	30
Soda,	4	3	7
Sulphuric Acid,	16	5	31
Chlorine,	5	6	11

(Concluded on page 11.)

Seed Selection

(Continued from page 1.)

long, and narrow, and pointed, and are heavy and coarse in texture. After having traced many of the plants from the seed to the mature plants in the field, I have come to the conclusion that many of these poor plants come from the light seed.

Many of the light and inferior seeds are of the same size as the heavy and desirable seed, and in general the difference between large and small tobacco seed is so slight that it is not possible or practical to separate the desirable from the undesirable by screening with any combination of sieves.

In some cases water separation is recommended for lack of a better method. The seed is thrown into a shallow vessel of water, and when the heaviest seed have sunk to the bottom, the light seed are skimmed off. This plan is not a success because the bubbles of air in the water attach themselves to the seeds and prevent much of the heavy seed from sinking, and the separation from this and other reasons is thoroughly unsatisfactory. Other plans have been tried, but there are none as simple and practical as the use of a current of air. A complete separation of the light and small, from the heavy seed can be made by constructing a simple machine similar to one designed and used by the writer.

The seed separator consists of a glass tube one inch in diameter and about five feet long, and a glass receptacle for holding the seed having the diameter of the long glass tube, and so arranged with a finely woven wire screen in the bottom, as to hold the seed in the receptacle and at the same time freely admit a current of air directly into the seed. The top of this receptacle is fitted with a coupling into which the long glass tube can be set and held in place. The current of air is generated by a common foot bellows, and regulated by a valve in the tube leading into the bottom of the receptacle.

VARIATION IN TYPE OF PLANTS OF THE SAME VARIETY.

These two plants are typical of the great amount of difference in type, shape and size of leaves, number of leaves, and character of growth, which exists in all varieties of tobacco. This variation makes it possible to make great changes and effect decided improvements in tobacco by careful and systematic seed selection.

The seed to be separated is poured into the receptacle, usually about one or two ounces at a time, the glass tubes set in place and a current of air pumped into the seed. The light and immature seed and chaff are first blown out of the tube and next the small seed. Small seeds of the same character as the larger seeds have proportionally more surface than the larger, consequently the small as well as the light seeds are removed by this separator.

A large proportion of the tobacco seed used in the Connecticut Valley this season has been separated by this type of machine or others made for the same purpose. No doubt great improvements will be made in machines for this purpose in the future. At the present time, where a small quantity of light seed has been sowed, in the same seed bed with the heavy seed, it has been found that the heavy seed has sprouted very uniformly, while the light seed has sprouted very irregularly, and only a very small proportion of the light seed has sprouted. In some germination tests made by the Seed Laboratory of the Department of Agriculture in the last few weeks, it was found that the heavy samples sprouted perfectly, while only from one per cent. to ten per cent. of the light seed sprouted at all.

One grower has reported that in his experience where he had carefully blown out the light seed, he found that the heavy seed was free from fungus disease during the period of sprouting, while the unseparated seed was attacked and seriously injured by fungus diseases. He believes that the dirt and fine chaff in the unseparated seed contains the spores of these fungus diseases, or is a fertile breeding place for such injuries.

As a rule the heavy seed do not sprout as quickly as the unseparated seed, due, it is believed, to the fact that the heavy seed may have a thicker and more resistant seed coat, than the light seed. However, it has been found so far, that the earliest plants for setting out are grown from the heavy seed.

One of the causes of the many grades of different sizes of tobacco in the crops, is the presence of the irregular plants grown from the light seed. This lack of uniformity increases the cost of assorting as well as reduces the yield and in many cases the value of the crop. The cost of seed separation is practically nothing, and as it costs as much to grow a poor as a good

FREAKS IN A FIELD GROWN FROM FRESHLY IMPORTED TOBACCO SEED.

The effect of the change of climate and soil conditions of the uniformity of tobacco is very striking and interesting. In view of the large amount of imported seed used in the Connecticut Valley the last few years, there has been abundant opportunity to observe and study this matter. The effect of the change is to break the type causing wide variation, among which appear many apparent reversions to earlier and unimproved varieties of tobacco.

plant, the gain from this separation is all pure profit. It is a simple and practical matter that every farmer can do himself, and from the interest already evinced in this matter by the Connecticut farmers, it will undoubtedly become a part of the regular work in the growing of the tobacco crop.

In a number of cases the writer has observed this spring that some farmers depend on seed stores or send away for seed. The recent experience of the growers of imported Cuban and Sumatra seed on an extensive scale, has demonstrated to every thoughtful man, that the grower should in no case depend on freshly imported seed, or seed which he is not absolutely sure is adapted to his farm. Every farm is unlike every other farm, and it has been a matter of general experience that every man should grow his own seed. If it is desirable to test foreign

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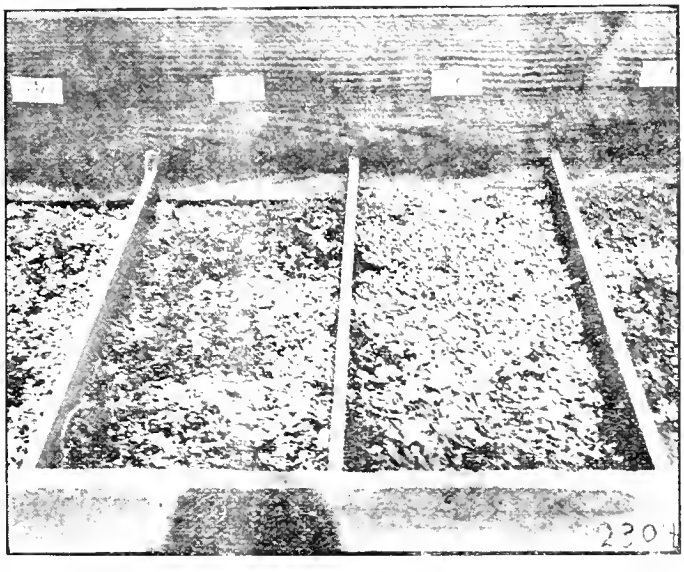

VARIATION IN VIGOR OF GROWTH OF TOBACCO PLANTS RAISED FROM SEED HARVESTED FROM DIFFERENT SEED PLANTS.

The difference in vigor of germination and rate of growth of seedlings raised from the seed saved from separated seed plants, is very marked. The seed harvested from different seed plants was saved separately and sowed in individual partitions or sections in the seed bed. The seed from some plants sprouted several days earlier than others, all of the same variety and type and sowed under the same conditions.

grown seed, it should be done on a small scale.

It has been found that a change of soil and climatic conditions tend to break up the uniformity of the types, and in all cases observed where such seed has been used, many striking variations have been observed, in the character of the plants. Many plants are found having the branching habit of the unimproved and wild varieties of tobacco, and are no doubt reversions to the original wild varieties.

The separation of the seed should be supplemented by careful selection of seed plants, and the saving of the seed under bag to prevent cross-fertilization. This matter will be discussed in an article on "The Selection of Tobacco Seed Plants" in the June number of The Grower.

A Freaky Spring

It will be remembered that the winter of 1904 was one of the coldest in a century, the ground freezing to a depth of four and one-half feet. The spring following was two weeks late or more. The spring of this year is about on time, or about a fortnight earlier than 1904's. That is, many tobacco growers sprouted seed and prepared their tobacco hot-beds about a fortnight earlier than in 1904.

Yet the spring has been freaky up to this time. Mellow weather has been varied by relapses into cold. Winter is lingering in spring's lap. All of the nights are colder than are desirable and seasonable.

Many forehanded growers of tobacco began sprouting seed about March 24 or 25, and sewed their tobacco beds early in April. A number of farmers have taken more care than usual in the selecting of seed.

Ordinarily seed are scattered in shallow pans or sometimes boxes of "apple dirt," the well rotted fibre or punk of decayed cavities in old apple trees. This material is mellow and rich, making a warm home for the seed. The dirt is frequently sifted before the seed is sowed. The pans or boxes are placed in warm windows on sunny days and over the kitchen stoves at night. The seeds quickly respond and at the psychological moment are put in the outside hot-bed.

Grower as Salesman

A party desires to be advised if he must pay a tax to sell leaf tobacco that he had raised himself, and, further, if he could be allowed to sell without tax, whether he could make sales for his brother or neighbor in the same way. He was advised that the law permits the farmer and grower to sell tobacco of his own growth and raising without restriction and without the payment of tax to any person and in any quantity so long as the tobacco is sold in its natural condition as cured on the farm; that this is a personal privilege accorded a farmer and grower, and cannot be construed as permitting him to sell the tobacco of his neighbor; that if, however, his brother is jointly interested with him in the raising of and preparing tobacco, assists in the cultivation and is entitled to a share of the proceeds resulting from its sale, the commissioner would hold that either the farmer or his brother could sell the crop if they each have a right of ownership in the tobacco sold; but if the brother cultivates his own crop, and the applicant has no legal share or interest in it, he would not be permitted under the law to sell it for him.

Profits of Tobacco Monopoly

The profits from the Japanese tobacco monopoly for the first year are 27,000,000 yen, which is equal to about $13,500,000.

Cuba's Tobacco Exports

Decrease in Leaf Exports—Increase in Manufactured Tobacco

THE table below with comparisons are taken from El Tobaco published in Havana:

SUMMARY OF EXPORTS.

Leaf Tobacco.	Bales.	Pounds.
Jan. 1st to Dec. 31st, 1903.	303,106	34,306,408
Jan. 1st to Dec. 21st, 1904.	250,638	25,398,687
Decrease in 1904	52,468	8,907,710
Manufactured Tobacco.		Cigars.
Jan. 1st to Dec. 31st, 1903		208,607,450
Jan. 1st to Dec. 31st, 1904		217,645,082
Increase in 1904		9,037,632
Cigarettes.		Packages
Jan. 1st to Dec. 31st, 1903		14,341,445
Jan. 1st to Dec. 31st, 1904		18,453,877
Increase in 1904		4,115,432
Cut Tobacco.		Pounds
Jan. 1st to Dec. 31st, 1903		235,122
Jan. 1st to Dec. 31st, 1904		252,542
Increase in 1904		17 419

LEAF TOBACCO.

The total production of all the tobacco districts in 1904 was 415,891 bales, against 342,748 in 1903, an increase in 1904 of 73,143 bales. Of this increase Vuelta Abajo contributed 79,939 bales; Semi Vuelta 12,099 bales and Partidos 14,281 bales. Remedios suffered a loss of 26,127 bales and Santiago de Cuba 8,072 bales

EXPORTED LEAF.

The exportations to the various consuming countries in 1904 amounted to 250,638 bales, or 25,398,687 pounds, as against 303,106 bales, or 34,306,408 pounds in 1903, a decrease for 1904 of 52,468 bales, or 8,907,710 pounds.

The United States continues to be Cuba's principal market for leaf, and imported during 1904, 196,861 bales, or 18,874,532 pounds, as against 206,698 bales, or 22,304,843 pounds in 1903, a loss during 1904 of 9,837 bales, or 3,430,300 pounds.

Tobacco Imports into Mexico.

According to a report to the Department of Commerce and Labor from Consul Le Roy, at Durango, Mexico, that country imports considerable tobacco from Cuba, Egypt, Turkey, France, and the United States, the main imports from this country being of Virginia leaf tobacco. His report is as follows: "Mexico imports considerable tobacco in the leaf, as well as in the manufactured form, pincipally Cuban cigars and cigarettes, American cigarettes and pipe and chewing tobaccos, and some French and German cigars and Turkish and Egyptian cigarettes. For the fiscal year ended June 30, 1904, the importation of Virginia leaf tobacco amounted to 2,468,773 pounds valued at $147,131 in gold; the importation of all other tobacco in leaf was valued at $32,896 in gold. Of this "other leaf tobacco" the United States also contributed 4,675 pounds. The Netherlands and Cuba contributed 17,332 and 15,890 pounds, respectively, and Sumatra and Germany were next in order, with small quantities from India, Belgium, Turkey, Persia, and even China, part of the tobacco from various sources coming through Great Britain Higher duties were placed on Virginia leaf last year, and this operates somewhat to change the course of the trade. In general, however, the importation of leaf tobacco into Mexico is increasing, partly through the increased consumption of foreign tobaccos.

Removal to Another District

A collector refers to the provision of the regulations No. 8, page 63, under the head "Removal to Another District," which reads as follows:

"That if the sureties on such bond consent to the removal they shall endorse thereon their assent, and stipulate and agree to be firmly held and bound for whatever tax liability may be incurred by the manufacturer by reason of the removal of the stock from one location to the other, etc."

The collector asks who, upon the filing of this consent and other papers stipulated, become possessed of the bond issued to the collector from whose district the manufacturer removes. He was advised that, as a new bond would be given to the collector of the district to which the manufacturer removes, the old bond with the consent of sureties to removal should be retained on the files of the collector from whose district the manufacturer removes, in order to protect the government in any tax liability or other irregularity which might have been incurred by the manufacturer by reason of the removal.

Corn as Shade for Tobacco

Two plants, one of tobacco, the other of corn, may be the solution for raising the finest grade of burley, says the Breckinridge (Ky.) Democrat. At B. F. Beard's tobacco warehouse is a lot of burley of a fine bright color, said to be equal to the canvas-grown article. It is the product of a Breckinridge farm, where each hill contained a plant of tobacco and a stalk of corn. The corn shaded the tobacco until it has a superior color and texture that will place it among the finest cigarette tobaccos. We are unable to learn the effect the tobacco had upon the corn, but can see no reason why, with plenty of fertilizer the corn yield would be materially decreased.

Potash as Necessary as Rain

The quality and quantity of the crops depend on a sufficiency of

Potash

in the soil. Fertilizers which are low in Potash will never produce satisfactory results.

Every farmer should be familiar with the proper proportions of ingredients that go to make the best fertilizers for every kind of crop. We have published a series of books, containing the latest researches on this all-important subject, which we will send free if you ask. Write now while you think of it to the

GERMAN KALI WORKS
93 Nassau Street, New York.

As Regards Calico

Discussing the tobacco plant disease known as "calico," a grower writes: "It is not known whether it is transmissible or not through the seed or the soil. Indeed many things indicate that it is not. In support of this theory, I would mention known cases where decidedly calico plants have been taken, where there was no doubt but the plants were affected. They were ripened in the usual manner and saved for seed, setting a row of these plants in an isolated place for experimental purposes, but not a plant either in the bed or elsewhere, was affected by 'calico.' I have taken plants from another man's bed, whose field was nearly ruined by the disease, taken them across the street, set them and not had a 'calico' plant. I have stopped setting at night, and commenced again in the morning. The first day's setting was entirely free from 'calico.' The next day's setting showed seventy-five per cent. Any theory as to the cause of this, that has even been advanced has been exploded; usually it comes on in an early stage of growth when it is possible to reset."

F. M. Johnson

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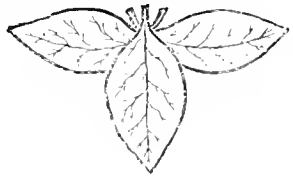
Leading Artist in Photography and General Portraiture.

Our photographs are not "shade" grown but are made with the clearness and exact likeness that win for us permanent customers. We are after your photographic trade. ***Studio, 1039 Main St., Opposite Morgan St.***

Essex Special Tobacco Manure and Tobacco Starter

ALTHOUGH the prices of chemicals have advanced very much during the past season, we guarantee to keep the analyses of all the high-grade Essex Specials fully up to the high standard of preceding years. ¶ The Growers that use our tobacco goods are among the most successful raisers in the Valley, getting good weight and a large percentage of light goods in **all seasons.** ¶ Buy our Tobacco Starter for your seed-beds, your plants will be from ten days to two weeks earlier than those grown on any other formula. ¶ Send for our Catalogue.



RUSSIA CEMENT CO.,
MANUFACTURERS
GLOUCESTER, MASS.

E. B. KIBBE, General Agent, Box 752, Hartford, Conn.

Amsterdam Market

The Sumatra situation is peculiar, Though the crop is faulty and not too well adapted for the American market, it has been bought enthusiastically at record prices.

It would have been natural, as things stood, if prices had lowered, but from the first they were high, and the upward tendency extended to the second inscription, which made a new value scale for the American market.

It is regrettable that no judgment was shown by the buyers at the two sales where the ruinous prices have made conditions unfavorable to the interests of the American manufacturers. Such prices as 350-600 cents Dutch for the better grade of first sizes and 250-400 for seconds have not been seen for ten years.

The causes of the present status of the market are not hard to find. Record prices were made in the 1904 fall inscriptions. Reports were circulated of a shortage in Sumatra leaf in America. Competition was strong and it may be that merchantile jealousy was aroused.

The 1903 crop did not pan out well; that of 1904 did much better, although profits were precarious.

As for the present crop, prices and results will depend on the law of supply and demand. It is certain, however, that the remaining stock of last year's crop will have to be exhausted before the present crop becomes the chief feature of the market.

Suffield

A large tobacco barn belonging to Fish & Kent, with its contents, was totally destroyed by fire April 17. The barn was 196 feet long and contained five tons of fertilizer, a plow, a mowing-machine, and racks, lath and hurdles for handling tobacco. The loss is estimated at about $2,100, with insurance of $1,600. The supposition is that the fire was caused by tramps, as one or two have been seen leaving the building in the morning after having slept there. It was impossible to check the flames, which were fanned by the wind. The building was burned to the ground in a very short tme.

Janesville, Wisconsin

Old leaf is again being sought more readily than has been the custom for a month past, and the summing up of all the transactions in old goods in this period of time will demonstrate that Janesville leaf dealers are awake to business.

Warehouse men are ceasing to ride for the new, and are devoting more attention to the goods in storage. Balmy weather during the week has also caused a stir among the growers to prepare the plant-beds, and the predictions about here are that an early planting will be made this spring.

Big Sale of Sumatra

One of the largest transactions in Sumatra tobacco that has taken place this season was put through April 10 when H. Dnys & Company of New York sold to an out-of-town manufacturer 196 bales of old Sumatra light colors and second sizes. The amount involved in the transaction was $35,000, exclusive of duty. It is estimated that this quantity of Sumatra will wrap 18,000,000 cigars. The purchaser is one of the largest manufacturers of the West, and his example is supplying his needs from the old goods will doubtless be followed by others who have been looking askance at the prices being paid for the new.

Tobacco in Ireland.

The experiment of raising tobacco on Col. Nugent Edwards' estate in Ireland has been comparatively successful. The leaf grew finely, but the curing gave trouble on account of the great humidity of the climate. Prof. J. N. Harper, the Kentucky expert who had charge of the affair, overcame the difficulty by the construction of a novel barn, with ventilators, heaters, regulators and desicators.

Importers' Protests Overruled.

In the cases of Wedeles Bros. and Rothschild, Sons & Co., against the assessment of duty by the collector of customs at the port of Chicago, the Board of General Appraisers at Washington has overruled their protests, holding that certain merchandise in the case was wrapper tobacco under Schedule F of the tariff act of 1897 instead of filler tobacco as claimed by the importers.

The NEW ENGLAND TOBACCO GROWER

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PAUL ACKERLY, *Editor.*

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THE USE OF FERTILIZERS

ATTENTION is called to the article in this issue of The Grower on Tobacco Fertilizers by Dr. E. H. Jenkins, director of the Connecticut Agricultural Experiment Station. The work of Dr. Jenkins along this line is standard and he is recognized as the leading authority on this subject in the United States. These suggestions by Dr. Jenkins are timely and if carefully observed and adapted to the individual needs of the growers, will result in improved crops of tobacco.

In view of the fact that cost of commercial fertilizers per acre is so great in the tobacco crop, it is important that the growers know the character and composition of the fertilizers they buy in order to get the best results with the greatest possible economy. The Experiment Station at New Haven makes an analysis of samples of fertilizers free of charge, and it will be to the interest of every grower to take samples of his fertilizers under Dr. Jenkins' direction for this purpose.

The Grower would be glad to receive the experience of growers with different kinds of fertilizers, and if questions on this subject are sent to The Grower, they will be answered by authorities on this work. From the fact that every farm presents a different set of conditions from every other farm, hardly two men's experience along this line agree. It is only by the combined experience of the growers as a whole, that we are able to make satisfactory progress.

On the whole it is a matter of general experience that it is absolutely necessary to use heavy application of fertilizers in order to raise profitable crops of tobacco. Cutting down from the necessary amount of fertilizers, is like cutting down of the regular feed of a horse, both are poor economy. What is needed is that every man study his own conditions carefully, experiment cautiously until the kind and quantity of fertilizers needed for his particular conditions are determined, then use fertilizers which are known to contain the necessary amounts of the elements of fertility needed to grow the crop.

By chemical analysis of representative samples, it is possible to obtain a definite knowledge of the quantities of nitrogen, potash, phosphoric acid, lime and other constituents contained in all fertilizers. It should be the business of the grower to utilize the State Experiment Stations for this purpose.

SELECTING SEED

IN order to raise a good crop of tobacco, as in the case of all other crops, good seed is essential. It costs as much or more to grow a poor plant as a good one, and frequently the poor plants interfere in the regular distance of the plants in the rows, and in this way injure the neighboring plants. Many of the irregular plants undoubtedly come from light, immature and small seed. The difference in size of seed is so small in the tobacco crop, that it has been practically impossible to make a satisfactory separation. The plan presented by A. D. Shamel of the Bureau of Plant Industry of the Department of Agriculture at Washington, in this issue, has been successfully used this season in the Connecticut Valley and elsewhere, and the growers attention to this matter is earnestly desired.

In the case of wheat or oats, if there are a few poor seed which fail to grow or produce small plants, the rest of the plants stand out and to some extent take the place of the poor plants. But in the case of tobacco a poor plant is not only a loss itself but an injury to the plants about it.

The selection and saving of seed plants, covering the heads of the plants with paper bags before the flowers open, to prevent cross fertilization in the variety, will be discussed and the methods illustrated in the June number of The Grower.

The improvement in yield or quality of the crop by attention to the seed, is a matter of pure profit to the growers. All experience proves this fact, and while advanced methods of seed saving are now practiced by New England tobacco growers, many improvements are possible. Every grower is interested in the progress of such important work and The Grower will be invaluable to the New England farmer in this connection.

CARE OF SEED BEDS

THE tobacco growers are already reporting the presence of the "damp-off" fungus in the seed beds. W. W. Cobey of the Plant Breeding division of the Bureau of Plant Industry, reports that he has succeeded in stopping this serious disease by applying to the affected portions of the seed bed a spray of one part of formalin to 2,000 parts of water. Formalin (a 40 per cent. solution of formic-aldehyde) can be secured at most drug stores, and if the growers notice this disease, they should try this remedy. The disease causes the young plants in the seed beds to suddenly wilt and die. They will be found to be apparently rotted off near the surface of the soil, and unless preventative measures are taken at once, whole beds are likely to be destroyed. The disease appears most frequently during cold damp spells of weather, when the beds cannot be given sufficient air and sunshine.

THE CORN CROP

THE value of the corn crop of New England ranks high among the agricultural products of these states. In spite of this fact a large amount of corn is annually brought into New England from the West and other sources for feeding or other purposes.

New England should grow all of the corn needed for consumption in these states. There is no good reason why the area devoted to corn should not be increased, as well as the possibility of increasing the yield and improving the quality of the crop grown on the acreage now planted to corn.

The varieties of corn now raised in Connecticut and other New England States are principally the flints, and strains of the flints from the north, while in some very few cases the most progressive farmers have been growing improved dent varieties. There is a prejudice amongst many New England farmers, against the dent varieties, the

cause of which is, in most cases, the belief that the dent varieties are not so good for feeding purposes, and that they will not mature in New England. There is probably good reasons for this condition, but in view of the importance of the crop to the farmers of these states, it would be well for them to study the experience of corn raisers in other states, especially the results of the experience of northern and western growers of dent and flint varieties in the past few years.

The corn growers of Minnesota, Wisconsin, South Dakota and other Northwestern states have universally grown the flint varieties or the northern so-called Canada varieties. Owing to the widespread interest awakened by the work of the Illinois Corn Breeders' Association, many of these northern farmers bought samples of the dent varieties for trial. The general experience of the farmers was that even with the improved and highly bred varieties of corn, the importing of seed the first year, gave poor and unsatisfactory results. The effect of the change of soil and climate was disastrous and discouraging to the growers. However, a few farmers in all sections persisted in the attempt to grow dent varieties, and selected the ears that matured earliest of all that were produced in the best type and character of stalk for those regions. The result has been that the dent varieties have almost wholly supplanted the old fashioned flints, because they gave larger yields of improved quality of corn per acre.

In Connecticut a few farmers are growing early strains of dent varieties, and are raising in some cases double the yield of the flint varieties. The growers report that the value of these Connecticut grown dents is much superior to the flints for feeding live stock. These farmers have demonstrated that it is possible to raise valuable strains of dent varieties of corn in New England, and all definite experience and analysis prove the improved value of highly bred dent varieties for feeding purposes.

It is possible to greatly improve the quality and yield of the Connecticut corn crop, and one of the first things to be done is to carefully test leading varieties of corn with a view of securing the best strains with which to begin selection and breeding work. The Grower will present in the near future articles bearing on this subject, and would like to receive the experience of New England farmers in the growing of different varieties of corn for different purposes.

In the Tariffville items, J. B. Stewart recommends two or three tablespoonsful of turpentine to a barrel of water for preventing injury to plants just set out in the field by cut worms. It can do no harm to try this simple experiment and we recommend that the growers give it a trial this season.

Cigar Leaf Market

The situation in New York in regard to domestic tobacco has undergone little change. The buying of the new crop in all sections keeps steadily on, and it looks as if the balance of the crop will be lifted at comparatively high prices. There is no doubt that the scarcity of fillers will make itself felt, and the quantity of the 1904 crop suitable for its purpose appears hardly large enough to meet the increased output of the cigar factories.

SUMATRA- From all reports prices will be higher at the next inscription than at any of the previous ones of this year. Manufacturers already obliged to pay increased prices for their filler stock will think twice before investing largely in wrapper goods at present prices. As a result, there has been considerable activity in the old Sumatra, and as last week, this type led the market in activity.

HAVANA -As has been the case for some time past, the inquiries for Havana tobacco were far in excess of the supply. However, there are no very big transactions to report, but sales were numerous in which from ten to fifty bales changed hands. Leaf dealers are more than ever inclined to stand out for their prices, and even the time-honored practice of "dating ahead" bills is practically eliminated.

Japan's Anti-Tobacco Law

Viscount Hayashi, the Japanese Ambassador in London, writing to the secretary of the Scottish Anti-Tobacco Society, states that there is a law in Japan prohibiting persons in their minority to smoke. The points of the stipulation, adds his Excellency:

1. Persons in minority—that is under twenty- are prohibited to smoke. If they are found smoking the police will confiscate the smoking instruments, as well as the tobacco.

2. If parents or guardians of youths under their knowledge allow their charges to smoke, they will be punished with a fine not exceeding one yen (about 2s).

3. Tobacco dealers who under their knowledge sell smoking instruments or tobacco to a youth for his personal use will be punished with a fine not exceeding ten yen (about £1).

Interest Turns to New Crop

Each succeeding week now sees more interest given the new tobacco crop, and less attention paid the sale of the moderate holdings of '01 leaf. Advices from several districts of the Connecticut Valley stated that small quantities of '04 tobacco were still hanging in some localities.

Activity is noted in the leading tobacco towns where growers are busily engaged in receiving manure and other fertilizers. In some districts where a larger acreage will be put out, more manure is being hauled in than last season. In fact, Connecticut growers seem to be looking on this natural fertilizer with great favor this spring.

In several of the Havana districts of northern Connecticut manure is being hauled in from New York at a cost of $2.25 per cord, or sixty to seventy per car, the latter including freight. Many growers are planning to use from nine to ten cords of manure per acre. Cottonseed meal is being purchased at a shade lower prices this year than last, growers giving all the way from $26.50 to $27.50 per ton.

A Remarkable Crop

Arthur B. Taylor, a Middlesex County, Connecticut, farmer, raised 13,644 pounds of tobacco last season on 5⅞ acres, or 2,322 pounds to the acre, and sold it for 18 and 20 cents, making his gross return $2,682.80.

This was a remarkable crop as to weight and Mr. Taylor gives this explanation: "In growing the crop, which was Havana seed, I used one ton of cottonseed meal, 500 pounds Connecticut 'tobacco manure,' high grade, 1,200 pounds lime ashes, and seven cords New York horse manure to the acre. The manure was put on with a spreader, plowed seven and one-half inches deep, ten inches cut with a sulky plow. The fertilizer was thoroughly mixed together, one-half sowed with a two-horse fertilizer sower, then harrowed in thoroughly before setting. The remainder was sowed between the rows the second line, hoeing; thoroughly and cultivating with a twelve-tooth harrow. I hoed it four times and cultivated it nine times. I give most of the credit to the fact that the manure was applied with a spreader, which insures an even distribution."

Baldwinsville, N. Y.

With but little tobacco now left in the growers' hands the local market is necessarily quiet. The growers are getting ready to prepare their plant beds for this year's crop and the care that is being used in the selection of seed is a most encouraging sign. The good prices received last year and the scarcity of tobacco in all the better grades is inducing many old growers who have not raised tobacco recently to decide to again grow a crop this year. With care in the selection of seed, attention to proper fertilization and cultivation, the prospects are bright for a good crop this year.

Famous Latakia Tobacco

Methods Which Impart to It the Peculiar Aromatic Pungency

UNITED States Consul Randal, at Beirut, Syria, in a report to the Department of Commerce and Labor on the commercial and industrial growth of Latakia, Syria, treats as follows on the production of tobacco in that region:

"Latakia tobacco is an article of commerce well known in Europe and America. It is black in color, owing to its fumigation by the Nusairich mountaineers in the smoke of a tree called 'elezzer' or 'ezr,' which imparts to it a peculiar aromatic flavor.

"This fumigation lasts for from seven to nine months, but only produces the desired effect during those of Winter and Spring, although the tobacco is still fresh and green in Summer when it is hung to the rafters for smoking purposes.

"The 'ezr' grows wild, seldom attaining the size of the oak, and gives out its aromatic odor when burned in the green state. It is a native of the Nusairich mountains and not found elsewhere, so it is claimed. Last year the Latakia tobacco crop amounted to six thousand bales, as against eight thousand bales for the preceding year. A bale weighs 87 to 92 kilos (191.4 to 202.4 pounds).

"Most of it goes to England at 14 to 24 cents per pound. It was rumored last year that the American tobacco trust was trying to secure a monopoly of the Latakia tobacco product. It already controls the licorice root industry in the Latakia and Alexandretta districts.

"An average crop of Latakia tobacco, as far as it is available for export, is worth about $350,000. Tobacco, olive oil, cotton, licorice root, wool, skins, sponges, honey, soap, and cereals, are the main exports. Tobacco is beginning to be shipped to the United States, and this trade is likely to increase."

Philippine Census

The Bureau of the Census at Washington has an advance synopsis of the census of the Philippine Islands taken by the Philippine Commission under the direction of Brig. Gen. J. P. Sanger, assisted by Mr. Henry Gannett, of the Geological Survey and Victor H. Olmsted, of the U. S. Department of Agriculture. This report will treat of all conditions in the Islands, including agricultural, educational, and horticultural, and will also deal with the population of the Islands, their different tribes, their occupations, their dwellings, their schools, vital statistics, labor and wages, pauperism, and all public and private utilities.

According to this synopsis a majority of the Filipinos farm small tracts of land, while those living near the coast follow fishing as their occupation. The number of female workers in the Philippines is double that of the United States and three times that of Cuba and Porto Rico. Of these nearly 70 per cent. labor in the factories.

The report will contain extensive monographs on the cultivation of the different products of the Islands, among them one by Hon. G. Gonzaga, governor of the province of Cagayan on tobacco. Speaking of the cultivation of tobacco in the Islands, the report says.

"In commercial importance tobacco is the third agricultural product, the value of the manufactured article being a little more than half of the value of all the tobacco exported, which amounted to nearly two million dollars in 1902. Measured by value of product, tobacco outranks all other products of the Philippine Islands and the output of the 113 establishments for 1902 was valued at $8,740,516, which is about 25 per cent. of the total value of manufactures for that year. The products of liquor and tobacco constituted 37.4 per cent. of the value of the insular manufactures as compared with 4.8 per cent. for the United States. The capital invested in manufactures in the Philippine Islands exceeds fifty million pesos."

Granby Street

Tobacco beds are looking well.

There will be some increase in acreage in this locality this season. F. M. Colton sets 10 acres and builds a four acre shed. Loomis Brothers will build at two acre shed, Latham and Chittenden a two acre shed, W. R. Stultz a two acre addition to his shed, A. H. Griffin a two acre shed, F. M. Miller a three acre shed, Trueman Allen, a two acre shed, R. Forsyth a four acre shed.

The tobacco warehouse of F. M. Colton closed April 14, also that of Henry Viets.

Northampton

One of the interesting features of telephone extension is the plan for the organizing of farmers' clubs, which may secure instruments at low rates. A dozen farmers living within six miles of each other may secure telephones at $18 a year. This plan has resulted in a remarkable development of telephone advantages in the vicinity of Northampton, particularly in Williamsburg, where the list numbers 50. For the accommodation of the large number of subscribers in Williamsburg an exchange has recently been opened at the home of F. A. Brooks. The enthusiastic appreciation of telephones now prevailing in Williamsburg is not confined to the advantages offered by the Bell system alone, but is also shown by the 30 instruments which have been placed in Haydenville by an independent local company. This company was recently organized and is capatilized at $1,500.

WANT ADVERTISEMENTS.

Advertisements under this head cost one cent a word each time; no advertisement taken for less than twenty cents; cash or stamps must accompany orders, which should be received by the 25th of the month.

TOBACCO LAND ON SHARES—I offer Tobacco Land to rent. Sheds for ten acres. Apply at once, in person. Chas. F. Fowler 140 Union St., Westfield, Mass.

WANTED TO PURCHASE—Second hand tobacco baling press. Box 38, care of New England Tobacco Grower.

WANTED—Distributer for the output of a small cigar factory making a specialty of $25 and $30 goods. Box 34, Care The New England Tobacco Grower.

WANTED—Second-hand green bone cutter D. L. B., Box 19, Rockville, Connecticut.

FOR SALE—Canadian hard wood ashes Try this fertilizer. George Stevens, Peterboro Canada.

JENKINS & BARKER,

Successors to Col. Charles L. Burdett.

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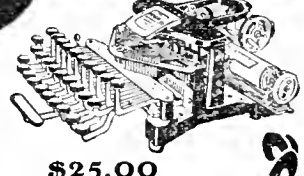

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Tobacco Fertilizers

Concluded from page 3.

This is on soils heavily fertilized. The amounts might be much less on a soil not generously treated. It does not at all show what the crop needs in any special case, but what it will take from an acre when it has all it wants.

THE COTTON SEED MEAL SITUATION.

Every tobacco grower is interested in cotton seed meal.

The following little table is instructive. It shows how many samples have been examined in the last five months for growers and dealers, how many tons were represented by the samples, and the average percentage of nitrogen found.

Month.	Number of Samples.	Tons of Meal.	Average per cent. Nitrogen
December,	6	128	6.95
January,	28	549	7.19
February,	22	441	7.02
March,	34	462	6.84
April,	26	280	6.74
Total,	116	1860	

The highest percentage found was 7.93, the lowest 6.18. In none of them was there evidence of adulteration. It will be seen that the January arrivals contained the highest average percentage of nitrogen and that th percentage has fallen off every month since then. The same thing was true last year. It may possibly be that the January shipments represent the first cotton pickings from which the seed would naturally be larger and more vigorous and richer in nitrogen than from later pickings. But this is mere conjecture.

It is interesting to note that tobacco growers in Suffield, Windsor, Granby, and the region about, have bought over 1,860 tons of cotton seed meal this year for use as a fertilizer, paying over $50,000 for it, and that 130 tons of nitrogen alone have been brought to the state from the cotton fields of the South.

Glastonbury

E. D. Dickinson has purchased crops for the American Tobacco Company and the Vanderburgh Company. Mr. Dickinson, in making the purchases, was accompanied by representatives of the two firms, and they have now closed the season's buying. The prices ranged from 24 to 30 cents. All the goods have been delivered, even twenty tons of rubbish that was sold to the American Tobacco Company, netting $631.63.

Those who have sold are the following: Paul Neuschler, 8 acres; William Despar, 6; John Cobb, 5; T. Clark, 13; George Smith, 4; Fred Naef, 4½; Samuel Roberts, 1½; John Leonard, 10; August Schultz, 1½; John Bengmer, 3; Leonard Hollister, 6; T. W. Welles, 12; Charles Strumburg, 3; John Welch, 1½; Carl Dean, 8; Minnie Henke, 3; James Reid, 5; James Kellam, 4; A. G. Fonce, 3; David May, 13; George Twillcott, 2; Elmer Twillcott, 2; John Sparner, 6.

Windsor Locks

A. N. Graves intends to raise twenty-five acres of broadleaf tobacco under cloth on the land which he recently purchased by auction of the United States Sumatra Company on the plains. This will be in addition to his former plantation of about seventy acres in the same locality.

Received a Diploma.

Dunlap & Buckley, farmers of Orcfino, Idaho, who have been experimenting in tobacco culture in that state have received a diploma of merit from the St. Louis World's Fair for their exhibits of Idaho tobacco.

Alleged Customs Fraud

Disclosures were made in a hearing at Philadelphia recently before Gen. T. S. Sharretts of the Board of United States General Appraisers, who came from New York to hold it, that will probably result in action by the United States District Attorney.

The hearing was on a claim by Teller Brothers, importers of tobacco, for refunds of duties amounting to about $25,000 on 345 bales of Sumatra wrapper tobacco, imported early in 1890, under the tariff law of 1883. The reason for the long delay in trying it disclosed a pecutiar condition of laxity formerly existing in the Collector's office there.

There were three protests, and one of them was properly stamped as having been received in the Collector's office in July, 1890. The other two were not stamped, but the importers and their brokers swore that they were filed at the same time. C. D. Lawrence, assistant counsel for the Treasury Department, developed the fact that the papers were found in the desk of the man who was protest clerk at that time, after his resignation from the service, in 1900, the discovery being made by his successor.

YAGUAS YAGUAS

Porto Rico Yaguas for Tobacco Growers.

Cuba forbids export of Yagua. Porto Rico will supply demand through

S. V. L. LIPPITT,
MAYAGUEZ, PORTO RICO.

Prices F. O. B. Porto Rico furnished promptly.

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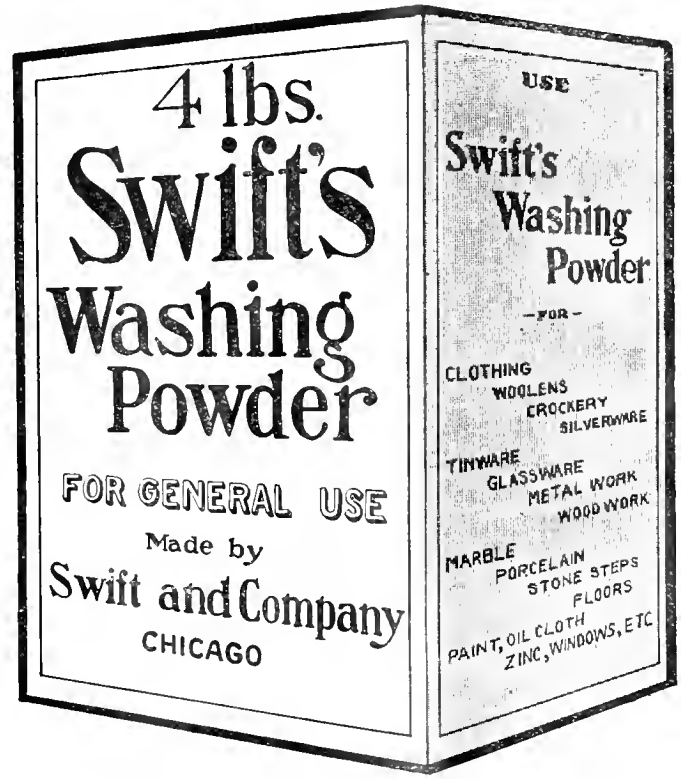


Swift's Washing Powder is the Tidy Housewife's best friend.
Try a package and see for yourself.

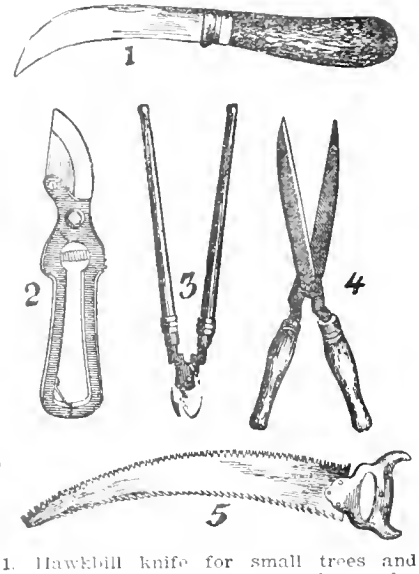
SWIFT PROVISION COMPANY,

19 John Street, - - BOSTON, MASS.

WHEN THE KNIFE IS SHARP.

Pruning in March Is Customary From Motives of Convenience.

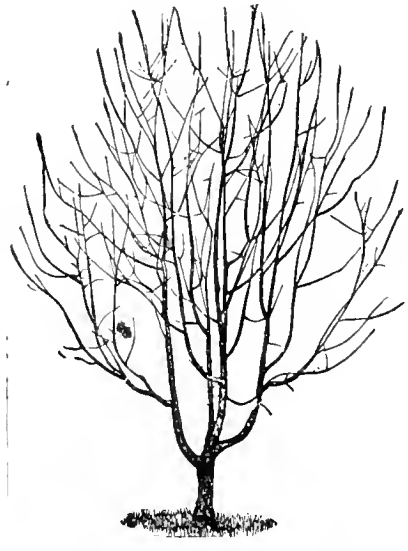
The best time to prune is between the middle of May and the middle of June, when the trees are growing thriftily, as the wounds will heal over quicker if done at that time, but as this is a very busy season of the year the customary practice is to prune during the month of March, when satisfactory results are obtained. By pinching off young growth, which is not required, in summer, labor will be saved in pruning. It is much better to prune at any time of the year than to neglect it altogether, as it is not a matter of great consequence what month it is done in. The important tools are a sharp pruning knife or shears.



1. Hawkbill knife for small trees and branches. 2. Hand pruning shears for larger branches. 3. Lopping shears for still larger branches. 4. Shears for pruning hedges. 5. A very desirable form of pruning saw.

Modern orchardists have come to look upon the low headed apple tree as more desirable than those headed high. A head which is two and a half to three feet from the ground is at present considered more desirable than one which is six feet or more from the ground. The latter height was formerly frequently used. In forming the head care should be taken to have the framework branches disposed at different heights along the body of the tree, say from three to six inches apart, and distributed as evenly as possible around the body as a central axis—that is, when viewed from above the picture presented would be that of a wheel, the hub being the central axis of the tree and the framework branches the spokes of the wheel.

When the trees begin to grow thriftily many new branches will be formed, and it is the work of the pruner to remove all those which are not necessary and to cut back others. The top of the tree should be kept open to admit air and sunlight, but pruning should be so carefully done that there will be no bare limbs. All branches which are growing across and through the top should be cut out. If two branches touch one another one of them should be removed. If a branch on one side of the tree has outgrown the other it should be headed back so as to make the tree symmetrical, cutting it off just above a bud which is on the side that it is desired to have the new growth. If when the trees are young they are treated in this way every year comparatively little work will have to be done at one time.



A LOW HEADED APPLE TREE.

A SUITABLE LOCATION

For Tobacco Growers

FOR any business man, professional man, or industry, is easily obtained by consulting the Industrial Department. ¶The proposition submitted will be attractive, embodying just the information desired to intelligently consider such an important matter as change of location. ¶Our monthly magazine of Southern opportunities will prove invaluable to those interested in the South.

THE LAND OF MANATEE

IS the most beautiful section of America, heretofore without rail facilities. The climate is delightful, the atmosphere salt-laden and perfumed by thousands of blossoming orange, lemon, grape fruit and guava trees and the most beautiful and fragrant of flowers. ¶A land of perfect health, ideal living, where crime, trouble and ill health are as yet unknown. Manatee booklets describe it in detail.

The most costly piece of railroad literature ever issued is the special Southern edition of the Seaboard Magazine of Opportunities,—yes there is one for you. It is unique, contains no advertisements, but hundreds of full page and half page photo gravures,—the most exquisite examples of the modern printer's art and each worthy of framing. Sent free on receipt of ten cents to pay postage.

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LUTHER M. CASE,

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Packer and Dealer in

Connecticut Leaf Tobacco.
Shade Grown
Sumatra in Bales.

Main Warehouse and Office, Pine Meadow, Conn.

BRANCH WAREHOUSES:
Southwick, Mass.,—Foreman, H. L. Miller.
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North Hatfield, Mass.,—Foreman, Willis Holden.
New Hartford, Conn.,—Foreman, James Stewart.

SUMATRA PLANTATIONS:

Pine Meadow, Conn., ... 25 Acres
Barkhamsted, Conn., ... 20 Acres
Southwick, Mass., ... 15 Acres

Always in the market for old Tobacco if well assorted and packed. Havana Seed Wrappers a specialty, assorted and sized into thirty-two grades. . . . . .

POULTRY SPECIALIZATION.

In the Biggest Poultry Producing County of the United States.

Poultry raising is largely carried on by farmers in America as a minor factor in diversified agricultural practice. In consequence poultry is found distributed on a large number of farms in small groups. This fact is illustrated by figures from the last census, which show that 88.8 per cent of the farms in the United States report poultry. This tendency is less marked in the west, for the census figures show that only 75.8 per cent of the farms in the Rocky mountain and Pacific coast states report poultry. The diffuse distribution of the poultry industry has to a certain extent masked the importance of poultry diseases. Individual losses are necessarily slight and have not constituted an incentive for demanding the more extensive investigation of the cause and prevention of disease. Unquestionably, too, the isolation of poultry in small groups has contributed to restrict the spread of infections.

An Amazing Poultry Population.

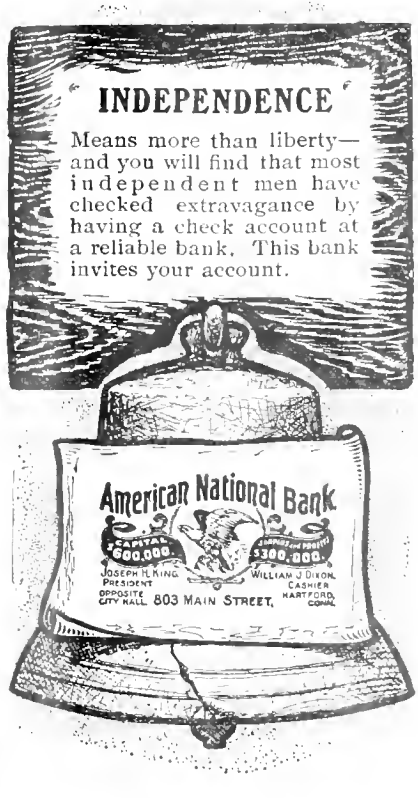
A complex combination of factors made Sonoma county, Cal., the greatest poultry producing county of the United States. The census of 1900 credits that county with an output of 3,218,450 dozen eggs and with 481,425 fowls three months old and over. The poultry population has increased since the census, as shown by figures compiled by the Petaluma Poultry Journal from data supplied by produce concerns in Petaluma, the principal shipping point in the county. During the calendar year 1903 the territory tributary to this one town supplied 3,407,331 dozen eggs. This divided by 6.2 dozen, the census figures for the average annual production for California fowls over three months of age, would indicate the presence of 549,408 fowls near Petaluma.

Fowl Concentration and Disease.

The concentration of this number of fowls upon a few square miles of territory has demonstrated the importance of the infectious diseases of poultry in undermining the profits of the business. The proximity of poultry establishments to one another as well as the traffic in laying hens affords favorable conditions for the spread of disease. The owner of 6,000 hens naturally dreads the practical annihilation of his stock more keenly than the average farmer owning a few barnyard fowls.

Sanitation a Necessity.

California poultrymen are united to an unusual extent in affirming that failure and diminished profits are due principally to diseases. A study of the poultry diseases and of the conditions under which they occur leads to the conclusion that a large percentage of the losses among chickens older than broilers is due to preventable diseases.


INDEPENDENCE
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OPPOSITE CITY HALL 803 MAIN STREET, HARTFORD, CONN.

The man who would reap the greatest profits from poultry husbandry must become thoroughly informed concerning the recognition of the various diseases and the sanitary methods necessary for their control.

Horticulture furnishes a striking example of a widespread popular education on matters pertaining to preventable losses from disease and the parasitic insects. This is a necessity sequent to specialization and concentration.

SPRING IN THE GARDEN

"Had I but two loaves," said Mohammed, "I would sell one and buy hyacinths to feed my soul," a sentiment we must all approve; but when hyacinths are growing and blooming in our garden we may keep the loaf.

Sow seed for tomato plants in March or April in the hotbed or in plats in the house.

By error in a recent note it was stated that soil inoculation is good for "sweet potatoes." The reader familiar with the legumes undoubtedly read between the lines and saw what was intended- viz, "sweet peas."

When the seedlings are growing in the hotbeds do not let the beds become too hot. Ventilate well in the milder days and water liberally.

On account of its vigorous growth, which enables it to overtop grass and hold its own against weeds, asparagus will withstand perhaps more neglect than most vegetables. But it also responds generously to good culture.

April is a critical month with the hotbeds. A little neglect in giving air and an hour or two of ardent sunshine will scorch the tender growth, or Jack Frost's touch at night, after a balmy day, may put the plant to sleep for good and all if the protecting mats were thoughtlessly left off.

The dahlia, that fashionable flower of the present, may be grown from seeds. These germinate freely. Seeds of single dahlias prove highly satisfactory, producing a great variety of self colors —striped, spotted and tipped—and are greatly liked for cutting.

The Oat Crop.

The oat crop is one that requires a great deal of moisture throughout the season, and the best crop is assured by preparing the soil so it will conserve moisture. The reason the old plan of seeding oats in corn stubble fails so frequently is because the ground is stirred shallow and wet early in springtime and when a few weeks of dry weather come it bakes as hard as the road and remains in this condition until harvest. It is not a good plan to be in too big a hurry about sowing oats. When the ground has dried out so it is in good condition to break then start the plow.—Ohio Farmer.

The Celery Seed Bed.

Make the celery seed bed level and fine it well. Then make a drill by pressing down the edge of a half inch board. Sow the seed. Now, instead of the usual method of covering take a sieve and sift over the seed about a quarter inch of soil and press this down with a roller or back of a hoe or shovel. Shade the soil with a mulch of straw evergreen.—Farm Journal.

Right Conditions.

Enthusiastic beginners in gardening should beware of the common mistake of starting outdoor operations too soon. Do not try to work the soil when it is too wet nor, on the other hand, delay the operation till it is too dry. Taken just right, the soil will genially second your efforts to put it into a nice mellow condition.

Ravages of the Boll Weevil.

According to a report recently issued by the census bureau, the boll weevil, or Anthonomus grandis, as it is technically known, destroyed 739,360 bales of the Texas cotton crop last year. At 10 cents a pound—and prices for futures went as high as 18 cents during the late bull campaign—this amount of cotton would be worth $36,968,000. To this the value of the seed must be added, and the census bureau, after exhaustive research, fixes the total loss at $49,272,989.61. This represents the damage for only one year, it must be remembered, and the weevil has been in Texas more than ten years.

A Southern Location

**For Your Home,
Your Manufacturing Plant,
Your Business.**

FARMS IN VIRGINIA, NORTH AND SOUTH CAROLINA, GEORGIA, ALABAMA, MISSISSIPPI, KENTUCKY, TENNESSEE.

GOOD LANDS AT LOW PRICES.

A healthy Climate, Long Growing Season and an all-the-year working Season.

The South is now making greater progress than any other section. If you would learn about its developments and the opportunities for good locations along the SOUTHERN RAILWAY, write for copies of our publications, which which will be sent free on request.

M. V. RICHARDS,

Land and Industrial Agent,

Southern Railway, **Washington, D. C.**

INDIAN HEAD PLANTATIONS
INCORPORATED

Growers and Packers of Leaf Tobacco

Assorting and Packing for the Trade

Specialists in Selected Tobacco Seed of the Cigar-Leaf Varieties

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TARIFFVILLE
Connecticut

A BROAD IDEA.

Formulated by the King of Italy, but American in Origin.

The king of Italy has put forth a project which appears ideal if not utopian from the sentimental and contraternal standpoint, yet excellent from an economical and technical point of view could it be sincerely and thoroughly carried out. At the instance of King Victor Emmanuel the Italian government has addressed a note to the powers proposing that a conference be held in Rome next May for the purpose of considering a scheme for establishing an international chamber of agriculture.

The king explained his proposal in a letter to the head of the Italian government, frankly admitting that the original idea had been introduced to him by a citizen of the United States. Briefly put, the king proposes, therefore, that the different leading nations should combine to form an international institution absolutely unpolitical in its aims which would consider the conditions of agriculture in the countries of the world and which would periodically notify the quantity and quality of the crops in hand so as to facilitate the production of such crops and make their distribution less costly and more rapid.

Other points would be the supplying of information as to the demand and supply of agricultural labor in different parts of the world, the promotion of agreements necessary for united defense against diseases of plants and domestic animals and the encouragement of societies for rural co-operation, for agricultural insurances and for agrarian credit.

Naturally such an institution would not only tend to consolidate the agricultural classes, but would yield a powerful influence for peace, for by promoting a knowledge of other countries and by extending the business relations of the various nations with each other war would daily become a more hateful and impossible thing than ever

Climate and Politics.

The climate of Australia is the chief factor in fashioning Australian politics. If it is advanced it is because the sun there has forced an early development. Girls here reach maturity two or three years earlier than in America, and countries count by generations. Meanwhile perpetual summer and continual sunlight are sapping individual energies. Even the American who comes here soon finds that sustained hustling is a physical impossibility. Let him spend three or four years in the country, and he will cease to wonder at the laws for an eight hour day and the early closing of shops. The winter is only another summer—cooler, it is true, but not cold enough to be invigorating.—Burriss Graham in Booklover's Magazine.

Scratching Posts.

Scratching posts, in the opinion of hog men, are not only a great comfort to hogs, but they may be made useful in ridding them of lice and of a scaly skin. The following plan is practiced by a successful hog raiser, who markets his animals in Baltimore. Plant a hickory post four inches in diameter in the hog run. Coil a manilla rope around this post as high as a hog stands and staple it securely. Then thoroughly saturate the rope with crude petroleum—kerosene will do, but it is not as good and it becomes an ideal scratching post for hogs and pigs. The animals will rub against it continually, and oil is fatal to lice and mites. If kerosene is used the saturation should be renewed every few days.—American Cultivator.

Warehouse Point

The cold weather has caused the postponing of the preparation of a number of tobacco seed-beds. It is probable that the acreage here will be increased about four or five per cent. this season.

Harry Parker has rented Aaron Smith's quarry lot and will raise tobacco.

L. L. Grotta is in New York on a business trip.

Tariffville

After one of the most severe winters that New England history has ever had occasion to record, Spring has opened with all its glory, and while the farmers go about their work with a smiling countenance and contented expression on their faces, their energy toward the tobacco crop is redoubled from what it has been for the past few years. This is due, somewhat, to the idea held by them, that a good tobacco season always follows a severe winter, but more especially to the fact that the financial returns from their 1904 crop, enables them to satisfy their creditors and make preparation to increase their acreage this year.

Already seed has been sown for an increase of from one-fifth, to one-third of the acreage planted to tobacco last season, and some of the more progressive farmers have their plants well under way.

Already the odor of the humus giving fertilizer, so well known in this section of the tobacco district, has begun to grow stale and some of the larger growers have begun to turn it beneath the sandy loam.

The farmers are also restocking their farms with new implements for tobacco culture. Loomis Brothers have already sold two car loads of plows, harrows and cultivators, and had sufficient calls to warrant their ordering more. As one drives through the country, he may see, placed here and there, material for a new tobacco shed, which gives promise of increased interest in the industry.

The officials have also met with a success, which is very gratifying, in their attempt to aid the farmers in improving their tobacco crops by seed selections, by holding a succession of institutes under the direction of the State Board of Agriculture, and all who tried the method of saving seed under bags last year, and the winnowing of them this year, so as only to sow the largest and heaviest seeds, are satisfied with their results, claiming their seed is coming up more uniformly and that their plants look more healthy than they have in previous years.

The few farmers who sowed a clover crop on their tobacco lands last fall, are not reaping a very heavy growth to plow under, but they are satisfied that the Russian Vetch, so much desired for a clover crop, because it converts from the air, and adds to the soil during a season, from seventy to one-hundred-fifty pounds of nitrogen per acre, is as hardy and will stand our winter as well as rye.

The time for setting out tobacco will soon be here and it will pay all who are bothered with cut worms and wish to avoid trouble from this pest, to remember that one tablespoonful of the spirits of turkentine, to each barrel of water, used in setting out the plants, will prevent the insect from cutting off the plant.

J. B. STEWART.

"It completely meets the needs of the crop," is the comment of one of our customers concerning our

Bowker's

Complete Alkaline

Tobacco Grower,

and he continues *"I consider this brand an excellent one for growing a fine leaf."* We think so, too.

BOWKER FERTILIZER CO., 220 State St., HARTFORD, CONN.

Tobacco Leaf's View

According to well-informed tobacco men, the amount of tobacco in New England growers' hands is the smallest in years. In town after town it is fair to say that there is not a case of unsold 1904 New England tobacco. In Suffield, Conn., which produces the largest amount of leaf of any town in the Connecticut Valley, buyers ceased their visits several weeks ago, the only unsold tobacco being held by growers who pack their own crops and wait for prices of their own making. An extra lot of tobacco is said to have been packed in Broad Brook, Conn., this spring. Many growers, who have been holding small lots of old crops, sold them when they disposed of their 1904 tobacco.

Prices have been remarkably stable, due largely to the fact that the quantity of desirable New England tobacco on the market has been so small for two years that no single crop could create a surplus.

The weather the past week has been the kind which brings joy to the tobacco planter. The bright, warm days could not have been surpassed for newly-started hot-beds. Opinion is pretty well agreed that there will be no startling changes in acreage in any town as compared with last year. In Westfield and Southwick, Mass., where a score of growers have been in the path of destructive hail storms for three successive seasons, the planters are still "game" and will set out their usual acreage.

"Artificial Damp"

That the practice of watering tobacco when taking it down is injurious to the quality of the leaf was decided by Judge Charles A. Decourcey, of the Superior Court, in the respective suits of Henry J. Hudon and L. S. Wetherbee against Joseph Mayer's Sons. As the Springfield correspondent of the New York Tobacco Leaf states, there was no dispute about the facts, the question being one of law.

In the fall of 1903 defendants' agent contracted to buy the crops of the plaintiffs, that of Hudson for 24 cents per pound and that of Wetherbee for 18 cents, the same to be delivered in good condition.

The plaintiffs gathered and hung the crops, took them down, using water to moisten them and tendered them to the defendants.

The defendants refused to accept the crops on the ground that they had been injured by the water. Wetherbee testified that the use of water did not injure the leaf. The defendants asked that a verdict be entered in their favor. The judge heard arguments and then ordered the jury to find a verdict for the defendants. The plaintiffs declare that upon entry of judgment they will appeal to the Supreme Court upon this question of law.

The New England Tobacco Grower

VOL. VII. No. 4. HARTFORD, CONNECTICUT, JUNE, 1905. $1.00 A YEAR

Selection of Tobacco Seed Plants

By A. D. Shamel, of the Bureau of Plant Industry, U. S. Department of Agriculture

EVERY tobacco grower has found occasional plants in his fields, which come near filling his ideal of the most desirable type of tobacco. Most frequently these plants are not discovered until after the crop has been topped, and it is not possible to save these plants for seed production. It is a matter of common remark among tobacco growers, that if they could produce crops like the individual plants which they find in their fields, they would produce a much more valuable and profitable type of tobacco than the ordinary crops. As a result of the experiments conducted by the writer in the Connecticut Valley, during the past three seasons, in the breeding of tobacco plants, and in the light of the work along this and other lines of plant breeding done in the past, it is possible to say that uniform crops of tobacco can be secured by every grower, simply and practically without extra expense of any kind, of the type of the best plants produced in the tobacco fields. This definite progress is possible by the application of the principles of seed selection and breeding to tobacco.

UNIFORMITY OF TYPE OF PLANTS GROWN FROM SEED SAVED UNDER BAG.

The two middle rows raised from seed saved under bag, and as can be seen in this illustration the plants show wonderful uniformity in shape and size of leaves, habit of growth of the plants and other characteristics.

There has been great progress made in the improvement of the varieties of tobacco, and the production of types adapted to special purposes, by the growers of this crop through careful seed selection, in all parts of the world. Many illustrations of this fact might be given, but two or three of the most striking ones will suffice to emphasize the importance and value of this work, in this brief paper. The White Burley is a variety of tobacco produced by seed selection from the common Red Burley variety. A grower of Red Burley in southern Ohio noticed one or two peculiar plants in his field, having the characteristic of the now well known White Burley plants. He saved the seed from these plants separately, and set out the seedlings raised from this seed in a separate section of the field the following season. From this beginning the production of the White Burley type of tobacco spread, until it is now one of the most important and extensively grown varieties of tobacco in the United States. The common Havana Seed variety of the Connecticut valley, is generally believed to be a selection from plants grown from imported Cuban seed. There are many local strains of the Havana seed variety, which are the results of the continued selection of a particular type of seed plants by the growers, as in the case of the Cooley Havana seed strain selected for rounded leaves and small fine veins. In the case of the broad-leaf or as sometimes called the Connecticut seed leaf variety, there are many widely known strains, such as the Halliday strain having short round leaves, the Bartholomew strain with long, large and rather pointed drooping leaves, which have been produced by growers selecting a particular type

(Continued on page 4)

East Hartford

William L. Huntting & Co., who pack for the firm of Hoffman & Son, closed their warehouse May 17. Mr. Huntting says the 1904 packing is the largest and best he has ever put up. His purchases of the 1904 crop aggregate 740 acres or about 3,500 cases, having bought them from 75 different growers, among them two who are reputed to be the largest individual growers in the state. The checks for these two crops amounted to over $32,000. The putting up of this packing cost the firm something like $6,000.

Meyer & Mendlessohn closed their warehouse the latter part of April, having packed over 4,000 cases of tobacco. 3,500 was Havana seed and the remaining 500 was broadleaf. The greater part was force-sweat. The firm employed 125 men during the season.

Edward O. Goodwin, who buys for Rosenwald & Bro., packed about 1,500 cases for the firm. He closed last week, discharging his force of about a dozen men.

Kapenberg & Bros. have completed the packing of the 500 cases of broadleaf bought around town.

It is estimated that the increase in acreage in South Windsor this year will be from 55 to 60 acres.

Lester Newton of South Windsor expects to raise 70 acres of broadleaf this year.

Dwight Farnham intends to raise 250 acres this year. This is a considerable increase over his last year's acreage.

Richard Devitt of Burnside has increased his acreage from 13 to 15 acres.

Oscar A. Chapman intends to set out two acres more than last year.

John H. Elmer expects to add a few more acres to his already large acreage.

This season the transplanting of broadleaf began somewhat earlier than usual. Many of the growers began setting out on May 21, and a few earlier than that.

W. C. Mulcahy of Hillstown set out two acres May 14. He is said to be the first to set out in the broadleaf section.

Mr. Bancroft set out one acre May 15.

There is reported to be no increase in the acreage in Hillstown this year.

R. Burnham of South Windsor began setting May 15. P. Hickey set out two acres May 17.

James Forbes of Burnside two years ago collected a number of broadleaf samples to send to the Louisiana Purchase Exposition, at St. Louis, as a specimen of the Connecticut tobacco industry. Last week the farmers who gave Mr. Forbes samples received a miniature facsimile of the grand prize badge awarded the state of Connecticut.

Tobacco plants for the Department of Agriculture at the farm of N. S. Brewer are looking excellent. They are unusually early, thrifty and uniform in the seed-beds. Prof. Shamel, who is conducting the experiments for the Department, and Mr. Brewer intend to set out about May 25. Prof. Shamel made selections from sixteen plants in last year's crop of broadleaf at Mr. Brewer's farm. Besides these selections he has some 45 or 50 crosses, including hybrids of the native broadleaf and foreign tobaccos. The difference in time of germination and rate of growth of the plants grown from seed saved from separate parents, is particularly noticeable. In some cases the plants will be ready to transplant several days before other selections. Some of the hybrids show unusual vigor of growth and are looking very fine at this time. All of the seed from which these plants were grown was saved under bag last season.

The ale-wives began their annual run in the coves and brooks throughout the Connecticut Valley last month. These fish go up the small streams in great shoals to deposit their spawn and then make their way back to deep water. In many sections of the valley the farmers for the past month have been fishing for them with scoop nets and have caught many bushels to use as fertilizer on the land, epecially for corn. It has been found that one fish to a hill produces a fine yield. Some farmers have used them to advantage in planting watermelons.

A small patch of vetch and two fields of alfalfa, sowed on the farm of N. S. Brewer of Hockanum, look very well. The vetch stands four or five inches high, and the alfalfa is branching out nicely, the roots being four or five inches in length. In all cases the crops have made a good growth for the season.

The tobacco plants grown under glass are from a week to ten days earlier than these grown under cloth shade, sowed at the same time. Many of the beds produced under glass were ready to set out the week beginning May 22, while many of the beds under cloth will not be ready for transplanting before June 1. In one case complaint has been made of the serious attack of the damp-off fungus under oiled cloth. As a whole the rainy season, with very little sunshine has been responsible for considerable injury to beds from this cause. The beds which have been thinly sown, so as to permit a free circulation of air around the plants have suffered least. The only way to prevent the disease is by carefully drying of the beds at the right time, thinning out these too thick, and application of formaline solution.

VINCENT BREWER.

Windsor Locks

The farmers have begun the work of setting their tobacco plants, the rain of the past week coming just in time to be of considerable benefit in the work.

Broad Brook

The tobacco packing house at R. C. Lasbury's, which has been in operation since the first of last December, closed May 16. The employees celebrated the closing day by having a game of baseball which was followed by refreshments and dancing.

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MANUFACTURERS,
Wholesale and Retail Dealers in
Doors, Windows and Blinds.
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STABLE MANURE
IN CAR OR CARGO LOTS
Prompt Delivery
Lowest Prices
R. M. Goodrich

HARTFORD AND NEW YORK TRANSPORTATION COMPANY
HARTFORD
CONNECTICUT

Tobacco Injured by Water

That the practice of watering tobacco when taking it down is injurious to the quality of the leaf was decided recently by Judge Charles A. Decourcey, of the Superior Court, in the respective suits of Henry J. Hudson and L. S. Wetherbee against Joseph Mayer's Sons, in Springfield. There was no dispute about the facts, the question being one of law.

In the fall of 1903 defendants' agent contracted to buy the crops of the plaintiffs, that of Hudson for 24 cents per pound and that of Wetherbee for 18 cents, the same to be delivered in good condition.

The plaintiffs gathered and hung the crops took them down, using water to moisten them and tendered them to the defendants.

The defendants refused to accept the crops on the ground that they had been injured by the water. Wetherbee testified that the use of water did not injure the leaf. The defendants asked that a verdict be entered in their favor. The judge heard arguments and then ordered the jury to find a verdict for the defendants. The plaintiffs declare that upon entry of judgment they will appeal to the Supreme Court upon this question of law.

Glastonbury

Henry Smith is planning to build a tobacco shed.

The New England Tobacco Grower

HARTFORD, CONNECTICUT, JUNE, 1905

"Fractional Fertilization"

By E. H. Jenkins, Director of the Agricultural Station, New Haven

"FRACTIONAL fertilization," as it is called, has been successfully practiced on certain crops, certainly on sugar-beets and tomatoes. By using nitrate of soda on the latter crop twice during the growing season, the crop has been increased considerably without making it any later in maturing.

It is said that an application of fertilizers heavy enough to damage the germination of sugar-beet seed, if put on all at once before planting time, may be divided, a third of it being put on at first and a third at each of two different periods when the crop is growing fast, and that the results have fully justified the practice.

The question is often asked, "Can we do the same thing profitably with tobacco?" We have done it sometimes in an emergency. In a cold and very wet season, when our fertilizers did not seem to work in midsummer and "yellow tobacco" appeared, we have worked in between the rows a thousand pounds to the acre of tobacco starter or quickly available plant food of some kind, and have pulled the crop through by this means. There are no fancy crops in such years, but we felt that we were paid for our extra fertilizer and work by saving ourselves from greater loss. But in a favorable year, can we get more tobacco of good quality by putting a part of our fertilizer on at planting time and another part when the crop is growing rapidly?

That is what we want to know, and the only way to find out is by the experience of careful growers who have taken pains to weigh their crops grown in the same season, on the same field, with the same fertilizers, and by the two methods, and then to determine which of the two crops is best in quality. That is the only evidence worth anything.

Certain considerations make the experiment worth trial. When very dry weather follows planting, the newly-set tobacco is sometimes evidently burned by the fertilizers, which are too strong in a dry time. More often, I think, the plants are somewhat injured, though we do not notice it or do not charge it to the right cause. No such trouble would follow if we put half of the fertilizer on the crop after it was growing fast.

It seems likely that a plant whose roots are not surrounded with very rich soil will develop at the start a more extended root system and so, later in the season, when the need of water is very great, will be better fixed to get what water it needs than one which can get all the food it wants with a few root fibers. Some years ago I proved that this was the case with geraniums. I watered them with plant food solutions from the start and they made splendid growth, far outstripping the control plants which had not this extra plant food. But of a sudden, the former lot of plants began to wilt and could not be recovered. On pulling them, it appeared that their root systems, though healthy, were very small and could not gather the water which the plant required, while the control plants had roots which filled the pots and kept the plants healthy.

It may be possible, then, to overfeed the tobacco plant at the start. To have to "hustle" for its food may be as good for the plant as for the rest of us, and a moderate application at setting time, followed by another dressing or two between the rows before cultivating, may—not always—but in may cases, prove better. It needs a careful trial.

A danger is that the later application may delay the ripening too much. The fresh supply of plant food may be feeding the crop and pushing it into growth at the time when it should naturally be ripening off for harvest. My guess would be that the last application of fertilizer should be made at least a week before topping. Very likely such tobacco will have to be harvested later than the rest of the crop.

Tariffville

Tobacco setting occupies the attention of growers at present. Ariel Mitchelson was the first to start. He began on May 3 and expects to finish setting his crop of twenty-six acres by June 1. This is several acres more than Mr. Mitchelson has been in the habit of raising. He will build a new shed in which to cure his extra acreage.

William Hayes is raising five acres of Havana seed on the old Mitchelson farm at North Bloomfield for George Mitchelson of St. Paul.

F. B. Griffen, superintendent of the Krohn Tobacco Company's plantation, at North Bloomfield, started setting his one hundred and twenty-five acre crop on May 10. He has kept three machines going most of the time since. He expects to finish setting by June 15.

George W. Harris, superintendent for the Hartford Tobacco Association, started setting his one hundred acre crop on May 7, and has kept two machines going since. He expects to finish setting by June 10. He will raise twenty-one acres of shade, ten of Cuban seed and eleven of broadleaf.

The Bureau of Soils have their four acres of shade which they are raising on the Hartford Tobacco Association's plantation, set out and the plants are doing well. This plot of tobacco promises to be one of interest, as the plants were all grown from seed saved under bag. Eleven different types, four from Cuban seed and seven from Sumatra, being used. Each type is grown from seed saved from a single parent plant.

The Indian Head Company have their setting well under way. They will grow about fifteen acres in the open and two under canvas this year. The two under canvas is grown for the Bureau of Plant Industry, and will no doubt be an interesting field when the tobacco gets a little larger, because there will be growing side by side plants of over two hundred diffrent types of tobacco. Some of the types representing Cuban tobacco, others Sumatra, broadleaf, Havana seed, freaks of many kind and some interesting crosses between the above mentioned varieties.

Peter Breadly is making preparations to build an addition of forty feet on his shed to cure his increase of acreage.

The frost of May 21 was a severe one but did no serious damage to the tobacco which was set out at that time.

The farmers are getting their tobacco set early this spring and it is to be hoped that the season will be favorable so that the crop can be harvested and cured before cold weather.

Broad Brook

The tobacco season is now fairly under way and the farmers are busy preparing their land for the planting. The acreage is much increased this year over last, and from present indications a good crop is to be expected. The crop of Havana last year was a disappointment, and a number of tobacco growers have been unable to dispose of their crops even as late as this. For that reason most of the farmers are planning to raise Connecticut seed leaf this year.

Selection of Tobacco Seed Plants

(Continued from page 1.)

of seed plant which suited their fancy.

It is not necessary here to review the work which has been done in the best, in the production of varieties of corn by careful and systematic seed selection, whereby the average yield has been greatly increased, and the value of the crop improved, or the improvement of cotton, potatoes and other crops by seed selection and breeding. There is no crop in which results are so quickly obtained and improvements so quickly and simply effected as tobacco.

In order to show the possibilities of this work in the improvement of tobacco, and the basis for the methods to be used which are outlined in this paper, the general results of the experiments conducted by the writer in the Connecticut Valley will be briefly presented. In a study of the crops grown from seed originally imported from Florida and Sumatra into the Connecticut Valley, it was found that there was many types grown from the same seed. Some of these types were as different in character and appearance, as broadleaf is different from Havana seed. Some of the types were desirable while others were wholly undesirable, so that the expense of sorting out the different grades was very great. Not only was this true, but in most cases, the undesirable types were not separated from the desirable, and the result was that owing to the presence of more or less of the undesirable types, the tobacco as a whole, achieved an unfavorable reputation.

Several hundred selections of seed plants, of the many types were made, and the number of leaves on each plant, counted, measured and fully recorded for future reference.

The leaves from all of the seed plants were harvested separately and kept separate during the curing and fermentation processes. The plants were classified according to type and so labeled that the seed from any plant could easily and quickly trace back to the plant from which it came. The seed from these plants was all saved free from cross-fertilization, by placing a paper bag over the seed head before any of the flowers opened, so that bees or other agencies, could not carry the pollen from plant to plant and thus effect cross-fertilization. The seed from each plant was saved separately, and the following season sowed in separate sections in the seed beds. The seedlings from these sections were transplanted in separate rows or plots in the field, all so numbered as to be easily traced back to the original parent plants.

VARIATIONS IN TYPE OF TOBACCO PLANTS OF THE SAME VARIETY.

Two plants growing side by side in the field, grown from the same original seed, and under like conditions.

The object of this experiment was to find out whether the parent plants transmitted their characteristics uniformly to their offspring, and in this way lay a foundation for the production of uniform crops by systematic seed selection. The results of this experiment were most striking and important to the tobacco industry. It was found that where parents bearing long narrow leaves were selected and the seed saved under bag, the progeny all produced the characteristic long narrow leaves of the parents. In the cases where parents with short rounded leaves were selected for seed, the progeny produced uniformly short and rounded leaves. Many selections of parent seed plants bearing very large leaves were made, in comparison with parents producing very small leaves. In every case the progeny produced leaves uniformly of the same size as the parents. Some of the parent plants produced many large suckers, while others bore but few small suckers. The progeny of these parents produced on the average the number and size of the suckers borne by the parent plants. In some cases parent plants were selected, which produced ripened leaves from a week to ten days earlier than the rest of the crop, and the crops raised from these early maturing parents, were uniformly early, similar to the earliness of the parent plants.

One of the most striking variations in the plants, was the number of leaves borne by the individual parent plants. The number of leaves varied all the way from ten to forty leaves in the individual plants. The difference in number of leaves was not correlated with differences in the height of the plants, but the increase in number was accompanied by a shortening of the internodes or spaces between the leaves on the stalks. Where there were many leaves, they were set close together on the stalk, and where there were but few leaves, they were borne

UNIFORMITY OF TYPE.

The two middle rows were raised from selections of a striking type, and seed saved under bag. By comparing the two rows of this type, with the rows on either side of other types, all set out the same day, and all from selections in the same original field, an idea can be gained of the transmitting power of tobacco.

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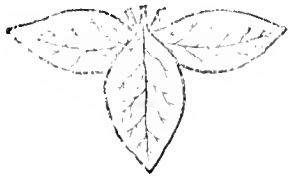

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far apart on the stalks. Careful selections of seed plants were made, from plants bearing a large and a small number of leaves, and the seed saved under bag. The progeny from these plants showed uniformly the number of leaves borne by the parent seed plants. Crops raised from parent seed plants having but ten leaves, produced plants that bore an average of about ten leaves, and crops raised from parent seed plants bearing forty leaves, produced plants bearing an average of about forty leaves. This fact was clearly and conclusively demonstrated, and has established the principle that by the selection of parent seed plants in the field producing a certain number of leaves, by saving the seed under bag, that number can be uniformly produced in the succeeding crops in the field.

Among the types selected for experimental purposes was one which produced large leaves somewhat resembling the broadleaf variety of tobacco, and for this reason it was called the broadleaf type. The progeny from the seed plants of this type were set alongside of the progeny of other types in several parts of the experimental field. The shape, size and body of the parent type of leaf, was uniformly reproduced in the progeny, and upon further examination after the tobacco had been cured and fermented, it was found that the leaves of this type would not burn with any of the tests that could be applied. An examination of the tobacco from the parent plants showed that it would not burn, and consequently led to the conclusion that this character had been transmitted by the seed. The fact is particularly striking because, the tobacco grown by the side of this type, under as uniform condi-

(Continued on page 12)

SEED SAVED UNDER BAG.

A typical seed plant with seed saved under bag. All of the large suckers and small top leaves were removed before the bag was applied. The leaves from this seed plant were picked as soon as they ripened, and the seed matured perfectly, and produced vigorous plants the following season.

Selection of Seed Corn

By A. D. Shamel, Bureau of Plant Industry, U. S. Department of Agriculture

SEED corn should be grown on the farm where it is to be used for planting. In no case should farmers depend on foreign grown seed corn for their general crop. In order to give the best results, the seed corn must be acclimated and adapted to local conditions by careful seed selection by the growers. As in the case of tobacco seed, a violent change of soil and climatic conditions, tends to break up the uniformity of the type of the variety, which frequently results in decreased yield and quality of the crop.

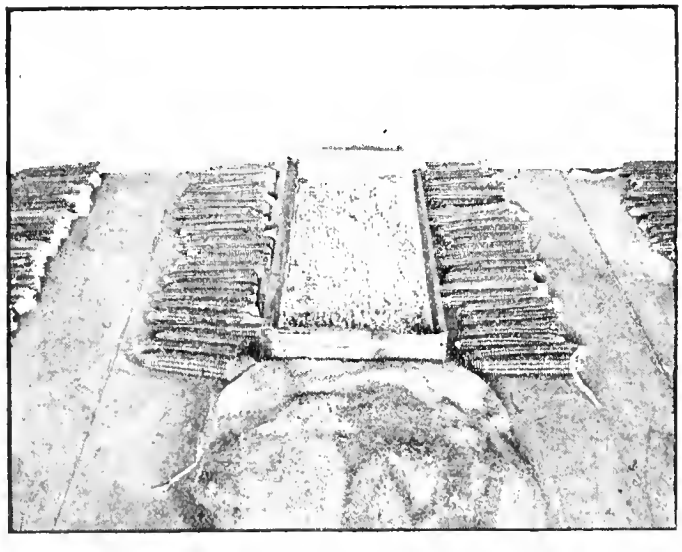
Many farmers depend upon seed stores for their supply of seed corn. Generally this seed is sent to the farmer shelled, in which condition very little idea of the character or quality of the seed can be obtained. There are many cases where it may be desirable to buy a part of the seed corn from corn growers or breeders, who have produced a valuable type or strain by long continued selection and breeding for increased yield or improved quality. In no case should a large amount of seed be purchased, even from the corn breeders until the type or strain has been carefully tested and found to be adapted to the conditions of the farm upon which it is to be grown. If a particular strain is found to give satisfactory results, and it is desirable to buy further seed, it should be bought in the ear. If the seed corn is purchased in the ear, it is possible to determine something of the nature and general characteristics of the seed, and is a protection both to the farmer who buys the seed corn, and the grower who produces the seed.

When the writer organized the Illinois Seed Corn Breeders' Association, the first organization of this kind in the country, one of the principal rules was that all seed corn sent out by members of this association should be sent on the ear, unless otherwise ordered. The general price of seed corn at that time, was about one dollar or less per bushel, while the price fixed by the organization was two dollars per bushel for seed corn on the ear. It was freely predicted at that time, that the idea was not practical, and that the organization would be a failure. However, from that time until the present, the corn breeders who are members of this association have never been able to raise enough seed corn to fill the demand, even though the price has frequently been raised to almost or quite double the original price for extra select seed corn. In view of the tremendous business now being carried on by the members of this association, and the fact that similar organizations have since been effected in all of the principal corn states, there can be no doubt as to the practicability and success of this idea.

Every ear of corn used for seed should be carefully tested for vitality. It only takes from twelve to twenty ears of seed corn to plant an acre, and every ear of seed corn represents five or six bushels in the crop raised from this seed. If only a few of the ears are of poor and weak vitality, the yield will be reduced very considerably. The seed corn of weak vitality, i. e., those kernels that sprout slowly, produce poor and weak plants, which bear the small ears and nubbins. Frequently these weak stalks are barren and produce no ears, almost a total loss to the growers. A runt sprout is like a runt pig, it is a runt always. The writer has followed thousands of the kernels which sprout poorly, from the seed bed to the end of the season, and in every case it has been found that these weak sprouts are responsible for the poor yield, and consequent lack of profit to the growers.

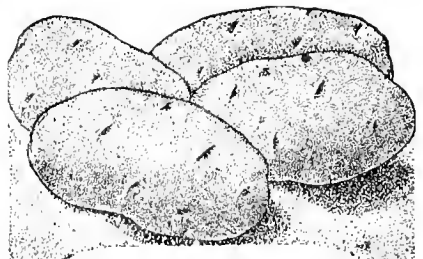
The seed corn can be easily and satisfactorily tested by every farmer, without any extra expense and with very little time or attention, so that all of the poor seed ears can be thrown out before the corn is planted in the field. It is poor policy to wait until after the corn is planted to find out whether it will grow or not, when it can be done before the seed is planted. Every bushel increase in yield secured in this manner, is pure profit to the grower, because it costs no more to raise a well developed stalk bearing a good ear, than it does to produce a weak stalk bearing nubbins.

In testing the seed corn for planting, the seed ears should be carefully selected and laid out on the barn or attic or some other convenient floor. In the first place the writer used to



ARRANGEMENT OF GERMINATION BOX.

In front of the box is the bag of moist sawdust used for laying on top of the samples, and at the back of the box, is the loose cloth used for laying directly on the samples to hold them in place. This test was made at Hockanum, Connecticut, the latter part of April, 1905, and the photograph was taken seven days after the sample kernels were placed in the box. The test showed 148 good ears, and 72 poor ears.



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lay the ears on the shelf, or on boards supported by barrels, but in the end came to do the thing that every farmer will do after the first trial, i. e., laid the ears down on the floor where they could be carefully examined. It is a good plan to lay the ears in rows, driving spikes in at the head of the rows, and at every tenth ear, driving in other spikes to hold the ears in place during the test.

In selecting seed corn, attention should be paid to the number of rows of kernels, the number of kernels in the row, the depth and shape of kernels, the shape, size of the ears, and the filling out of the kernels over the tips and butts of the ears.

The most important point is the shape and character of the kernels. Other things being equal, the kernels should be wedge shaped, with no space between the kernels at the tips near the cob, and no space between the rows of kernels at the tops of the rows. All such space is lost to the grower, and indicates a poor type of corn. All of the kernels should have thick tips, indicating a strong constitution, with large deep germs. The larger the germ, other things being equal, the stronger the vitality of the seed and the more valuable the corn for feeding purposes.

In making the germination test, six kernels should be taken from every ear, one from near the butt, one near the middle, and one near the tip on one side, and a similar sample from the other side of the ear. The kernels should be taken out of different rows, so as to get as representative a sample as possible from every ear. Each sample should be carefully laid down by the butt of the ear from which it was taken, every ear selected for seed being tested in this manner.

The germinator or testing box is easily made. It can be made from any convenient soap or dry goods boxes, or if necessary, made out of ordinary six inch fence boards. The size of the box will depend on the amount of seed used. A box three feet long and two feet wide is large enough to test every ear of seed used for fifteen acres. The box should be about six inches deep. Saw dust, thoroughly moistened with warm water, is the most satisfactory medium for testing the vitality of seed corn. It should be placed in a coarse gunny sack and dipped in a barrel or tub of warm water for an hour or so before the test is to be made, in order to get it thoroughly and evenly moistened. Then the bag of sawdust should be taken out of the tub of water, and allowed to drain for a few minutes or until the excess of water has run out of the bag. The testing or germinating box should be filled about one-half full of the moist sawdust, in all cases the layer of saw dust in the box should be at least three inches in depth, in order to retain sufficient moisture for the complete germination of the samples of corn. This layer of saw dust should be pressed down firmly in the box, in an even layer, so that there will be an even and regular surface.

On the top of this layer of saw dust, a white coarse and strongly woven cloth cut so as to fit the inside of the testing box should be laid. This cloth should be ruled off into small squares, checkerboard fashion. By using a common lath, and a soft lead pencil, this marking can be easily done. Each square should be about two inches square, and carefully numbered somewhat after the fashion of the following diagram:

The cloth should be carefully tacked to the inside walls of the testing box, so as to hold it down firmly on the moist sawdust, and to prevent it from being moved about, thus displacing the samples which are to be laid in the squares on the cloth. The marks on the cloth must be made with a lead, or indelible pencil, because ink will run when moistened so that the lines and figures become indistinct.

The rows of ears of seed corn can be easily arranged to have as many ears in each row, as there are number of squares in each row on the cloth, as in the case of the diagram twenty ears in each row. This arrangement adds to the simplicity of the test, and does away with the necessity of numbering the individual ears in order to keep track of them and their samples during the test. The rows of ears should be placed far enough apart so that the testing box can be easily dragged back and forth on the floor between the rows.

After the testing box has been prepared in this fashion, it should be set down on the floor by row number one, and the sample kernels from ear number one placed in square number one, the sample from ear number two in square number two, and sample from ear number three in square number three, and so on until all of the samples are placed in their respective squares on the cloth in the box. It is a good plan to lay the germ side of the kernels up, so that the nature of the sprouting can be more easily observed. It can readily be seen with a little study, that by this method the samples in the box, can be readily traced back to the ears from which they came, at any time.

After all of the samples have been placed in the squares on the cloth in the box, a loose cloth should be carefully laid over the samples. This cloth will tend to hold the samples in place, and prevent them from being moved about, by any accidental shaking or moving of the box. A coarse cloth such as a gunny sack, should be laid in the box, and two or three inches more of loose moist sawdust packed in on this cloth. In this condition they will have a layer of moist sawdust above and below, which will give them sufficient moisture for complete germination. The sawdust need not be moistened again during the test.

The completed box should now be placed in a warm room, the living room, or kitchen or any place where it

(Concluded on page 16)

ARRANGEMENT OF CLOTH FOR TESTING BOX.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	61	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200

A box of this size would be about 40 inches long by 20 inches wide, and test the samples from 200 ears. Where the corn is planted 3 feet 6 inches by 3 feet 6 inches in the field there are about 3,556 hills to the acre, and if 3 kernels are planted in every hill, and each ear of seed corn bears about 1,000 kernels, it can readily be estimated that a testing box of this size would test enough seed to plant nearly 20 acres, providing all of the seed ears were used.

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TOBACCO SEED SELECTION

THERE is no work in all agriculture which is more interesting than the production of improved strains and varieties of our farm crops by systematic breeding and seed selection. Among the breeds of live stock we find numberless illustrations of the value of the breeder's art, and the improved breeds of cattle, horses, hogs, chickens and other farm animals, are the result of intelligent and persistent breeding and selection. The improvement of our farm crops, by an application of the laws of breeding which have given such important results in all of the breeds of animals, is comparatively recent. In fact we have just begun to find out some of the general principles and apply them in a practical way to the growing of better varieties of crops. In view of the fact that in a single season, we can plant a single seed and reap many times this number, the results of breeding in the case of farm crops and plants have been quickly obtained, and remarkable progress accomplished. Our agriculture as a whole, and consequently the prosperity of our country as a whole, has depended upon the progress made by the farmers in the improvement of the breed of live stock and the varieties of crops and fruits, by breeding and selection.

In the case of the tobacco plant, the growers recognize the importance of careful and systematic seed selection, and give more care to the selection of seed plants and saving of the seed, than is the rule with most farm crops. The improved varieties of tobacco which are grown for special purposes in different sections of the United States, is an evidence of the care taken in this matter by the tobacco farmers. However, most of the scientific experimental investigations with this crop, have been directed to the study of the soil and fertilizers in their relation to the nature and character of the crop. No one doubts the importance of the effect of soil and climate on the character and value of the crop, and the great value of these investigations in the successful production of profitable crops of tobacco in this country. It is a fact, however, that the great interest in this phase of tobacco culture, has resulted in a lack of attention of the necessity of most careful and systematic seed selection. The running out of some of our important varieties of tobacco which have been grown in particular sections for many years, the results of importing tobacco seed into this country from Cuba, Sumatra and other foreign countries, has resulted in calling the attention of the scientists and farmers alike to the necessity of a more careful study of the questions of seed selection and breeding in the tobacco crop.

In view of the great expense per acre involved in the growing of a crop of tobacco, it is particularly important that the best possible and the most uniform plants be produced. A lack of uniformity results in lessened yields per acre, as well as an inferior product, and increased cost of assorting and handling the crop. On the other hand greater uniformity means increased yields of more valuable tobacco at the least possible cost. It costs no more to grow a good plant than a poor one.

Another matter of the highest importance, is the effect of the continued use of the great amounts of fertilizers for the production of the crops, on the seed bearing habit, and the transmitting power of the seed. In other words we are growing the tobacco crops in a much higher state of soil fertility, than they exist in under natural conditions. What effect will this system of cultivation have upon the production of vital and productive seed? In the case of the potato crop, for instance, the continued use of the tubers for seed, has resulted in almost a total loss of the seed bearing habit. Most of the older farmers recollect that potato seed balls were a common occurrence years ago, while today we rarely find a ball even in a large field of potatoes. In the case of the tobacco crop, we are selecting for the production of abnormally large leaves, and pay little or no attention to the amount of seed produced because it is not an important factor, except in the propogation of the variety.

In this issue of The Grower, A. D. Shamel of the Bureau of Plant Industry of the Department of Agriculture at Washington, presents some of the results of experiments in the breeding of tobacco plants, which are of particular interest to the growers of this crop in the Connecticut Valley. It will pay every grower to read this article carefully and save a part of the seed according to the plan outlined in this paper. The Department of Agriculture is co-operating with the Connecticut Agricultural Experiment Station at New Haven in this important work for the State of Connecticut, and it is hoped that other states in New England will likewise take up this work in co-operation with the United States Department of Agriculture. The state experiment stations and the department are supported by the taxpayers, for the purpose of investigating such questions that the farmers do not have the time nor can afford the expense to carry on as individuals. Therefore such work should be followed closely and practical results put in practice generally by the farmers as a whole, modified if need be, by peculiarities of the individual farms.

From what has already been done by the tobacco growers in the production of improved varieties of tobacco adapted to special or peculiar conditions and for use in different kinds of tobacco products, there is no doubt but that great progress will be made along this line in the near future.

FERTILIZATION

THE article in this number of The New England Tobacco Grower, by Dr. E. H. Jenkins, is exceedingly important and timely. There is a great deal of discussion amongst tobacco growers, at this time, regarding the wisdom of applying fertilizers to the growing crops. In some cases, our best tobacco growers recommend the application of a part of the commercial fertilizers after the crop has made a start in the field, feeding the plants as they seem to need plant food. Several implements or fertilizer sowers have been designed and are in use for this purpose. Other equally successful growers do not believe that it is wise

to follow this plan, as it tends to produce an abnormal condition of plant growth, which will not allow of the natural development of the plant, and in consequence produces a poor quality of tobacco.

In view of the extensive use of commercial fertilizers and the expense of this method of cultivation, it is necessary to use the greatest possible economy in the use of these fertilizers, as well as apply them so as to produce the best possible quality of tobacco. The Grower will present notes of interest on the experience of farmers along this line, during the coming season, and would be glad to receive any experiences on this subject that the farmers will present for publication. We are all interested in securing the best possible results, with the least possible expense consistent with good practice, and in the bringing together of the experience of many growers, it is possible to get at the facts for the benefit of everyone.

THE TEXAS SITUATION

IN this issue of The Grower, J. B. Stewart presents a paper bearing on the conditions of tobacco industry in Texas. Mr. Stewart has been closely identified with this work in Texas, and is thoroughly conversant with the conditions there in regard to the tobacco business. He calls attention to the fact that during the eighties there was a large quantity of tobacco produced in Texas, when it was difficult to get satisfactory tobacco from Cuba. Later experiments have shown that it is possible to grow a desirable type of filler tobacco in some sections, which as a matter of fact was a well known fact years ago. The question is why has the tobacco business failed there, and would it be worth while to attempt to go into the industry again on an extensive scale.

This much may be said with certainty, it is a desirable thing to produce as much as possible of the products we use in this country, within our own borders. It is advantageous to this country as a whole, and adds to the prosperity of all of our industries. The failure of the business in Texas, as attributed by Mr. Stewart to the running out of desirable types of tobacco through indiscriminate cross-fertilization, and lack of seed selection. If, therefore, a desirable type of tobacco can be maintained there by seed selection and breeding, and the crops can be produced with a reasonable profit, it will certainly be to the advantage of the state of Texas, and the country as a whole, to establish the industry in that state on a sound basis.

One thing must be kept in mind from the start, if the present attempt to revive this industry is successful it must be through the careful production of an established type of Texas filler, by seed selection. At the same time the broadcast advertisement and promotion by means of extravagant claims as to the profits of this work, which has appeared recently, is unwise and must redound to the detriment of the growers who are sincerely interested in the establishment of a sound policy and well founded methods of cultivation, handling and marketing of the crop. If the industry is allowed to develop naturally, the mistakes corrected as soon as possible, and a good class of citizens interested in the business, there will be a better chance of satisfactory and permanent results.

The Grower will present from time to time articles of this character, dealing with the tobacco industry in different sections, written by specalists along this line, and every tobacco grower should read them carefully in order to get at the facts in every case.

ALFALFA IN NEW ENGLAND

DURING the past few years, and more especially the last two or three seasons, there has been many attempts to grow alfalfa in New England. It is a well known fact that in certain sections of the west, alfalfa has become one of their most important and valuable forage and hay crops. The cultivation of this crop has been gradually extended, until at the present time the acres devoted to its culture covers a wide range. This development has been made possible by the production of strains or varieties which are acclimated to the different conditions under which the crop is grown. As the production of alfalfa became more important, the method of culture was modified, or improved to suit the local conditions of soil and climate.

In New England alfalfa has been tried with varying success. In some cases good crops are regularly harvested, while in others the crops are almost worthless due to a poor stand and other reasons. In view of the great importance of the addition of such a valuable crop to New England agriculture, the investigation of the methods used to successfully grow alfalfa, and the causes of the failures is a matter of great interest to the farmers, particularly those who raise or feed dairy cattle, horses, poultry or any breed of live stock in general.

The present season, there have been several acres of alfalfa seed sowed on typical soils in different sections in the Connecticut Valley. Different methods of preparing the seed bed, inoculation of the seed or soil, and fertilization have been tried, and will be anxiously watched by those interested. Past experience has proved that under certain conditions alfalfa can be successfully grown in New England and it is probable that its culture will be greatly extended in the near future.

TOBACCO MEETINGS

THERE have been held in various sections of the Connecticut Valley, during the past spring under the auspices of the Connecticut State Board of Agriculture, a number of meetings for the purpose of discussing tobacco subjects. These meetings have been well attended and have resulted in arousing a great interest among tobacco growers, in the methods of cultivation, seed selection, fertilizing and other phases of the tobacco industry. This interest cannot help but be beneficial to every one concerned, and The Grower heartily recommends such work, and advocates the general extension and the holding of such meetings during the coming summer and fall in all tobacco sections of New England. These meetings were addressed by Dr. E. H. Jenkins of the Connecticut Experiment Station at New Haven and A. D. Shamel of the U. S. Department of Agriculture.

East Windsor

The big planters will engage in tobacco culture fully as heavily as last year. Dwight Farnham will raise about thirty acres of broadleaf, McNary Brothers twenty-five acres, Oliver Pulton the same, Bancroft Brothers thirty acres, Edgar Farnham eighteen acres, William Wood eighteen acres (an increase of five over last season), Lester J. Newton thirty-five acres, Martin McGrath twenty-five acres. Growers on "East Windsor Hill" say that they will yield the palm to no other district in the Connecticut valley for the high average prices received for '04 broadleaf. The best crops brought 30 to 42 cents per pound, Jones' crop realizing the last named price, which was the top mark of the entire Connecticut valley. The Gilman crop brought the same figure.

Tobacco Culture in Texas

By J. B. Stewart

THE culture of tobacco in Texas is by no means a new industry. Long before Texas became a part of the United States, tobacco was raised there to a more or less extent. The industry did not reach its height, however, until about 1887 when upwards of 2000 acres was raised. The tobacco raised at this time was used as a cigar filler; but the cigars made from it were not put on the market as made from Texas tobacco. About this time Cuba, the island from which we import the filler for our best cigars, was undergoing a revolution, and on account of the havoc of war, was unable to furnish the manufacturers of this country with filler tobacco for their cigars. As a result the cigar manufacturers had to look elsewhere for a filler for their cigars and in the Texas product, they found a filler which at that time, in many instances, was substituted for the imported filler without its being detected by their customers.

Shortly after 1887, however, owing to some cause, the tobacco industry in Texas began to decline and in 1900 there was scarcely any tobacco produced in the state and what had been produced for three or four years previous to this date was unmarketable. Now the question arises, why should Texas with it's vast resources and widely diversified soil and climatic conditions, let so important an industry decline? Was it because the culture of some other crop brought larger net returns to the farmer or was it on account of some deterioration in the product itself? The writer is inclined to believe from a study of the subject among the people who were once prominent tobacco growers in Texas, that there is only one plausible solution of the problem. The tobacco raised in Texas prior to 1901 was raised from seed brought by the settlers from the different tobacco producing states of the Union from which they came. It happened that most of the settlers in Eastern Texas came from Ohio and Florida and here is where the best domestic cigar filler was produced prior to 1887. Shortly after 1887 however, the seeds from the different types began to contaminate each other and as no attention was paid to the selection of seed, to keep up the quality of the leaf, the product soon deteriorated so much in quality that the trade could no longer use it.

This might easily happen to any tobacco producing section of this country, did the growers not see to it that the quality of their product was kept up by seed selection.

TEXAS TOBACCO FIELD.

Located at Giddings, Texas, 1904 crop. Set May 10th, photographed June 18th just after topping. Harvested June 27th and yielded 900 pounds per acre, in the bundle. Fertilizer used was 15 loads of cow pen manure per acre.

In 1900 the cotton boll weavel became so prominent that it promised to lay waste the cotton lands of Texas by destroying the crop. The people seeing that the little insect was about to make it impossible for them to raise this, their staple crop, called upon the Department of Agriculture to start investigations to ascertain what could be done in the way of reviving the tobacco industry of their state. Accordingly, in 1902 a party of experts were sent by the department to Texas to see what could be done in this direction.

They worked along the lines of raising tobacco from imported Cuban seed by improved methods of cultivation. the test was first made in Willis county, Texas, and afterwards in Nacogdoches, Houston, Lufkin, Barry and Andersou counties, with results that promise fair to warrant that in time the industry will become one of no little consequence, not only to the Lone Star State, but to the whole country. The tobacco produced in 1902 and 1903 was raised in co-operation with farmers, after this tobacco had been properly cured, fermented, packed and aged, by direction of the government experts, samples were submitted to the trade in 1904, and after receiving many favorable comments as to its flavor and aroma, the product was sold at a price which averaged 35 cents per pound for the crop. The 1904 crop was raised explicitly by the government and is not as yet in condition to be submitted to the trade, but the product shows so much favor that farmers have taken up the industry in a small way and will raise upwards to 100 acres this year under the supervision of the department experts. All of this year's crop has been contracted for at a profitable price by a Chicago firm. Besides this 100 acres grown by the farmers under the supervision of the government experts, private concerns will grow upwards of 100 acres.

Although the product promises well for a cigar filler and the manufacturers who saw and handled some of the 1903 crop, give very encouraging reports, the industry is yet in the experimental stage and it will probably be sometime before it will be established so as to be recognized by the tobacco trade as an industry of much consequence. Some private companies have made experiments on a small scale with the tent wrapper in Texas and have produced a wrapper that in some respects resembles the Florida leaf and in one respect it is better, the burn being almost perfect but the yield so far, has been too small to make the cultivation of a wrapper tobacco profitable. The experiment is still in progress, however, and in time this difficulty may be overcome.

The soil of Texas, in some respects, is like that of Connecticut, it is varied, and it has been found by experiment, that the red lands or chocolate sandy loam, produce the filler of the best aroma and flavor. This chocolate sandy loam is as the name would indicate, a chocolate colored sandy loam to a depth varying from three to six inches, underlayed with a stratum of heavy clay soil to a depth varying from three to twenty feet. It is a naturally rich soil and holds the moisture well. This land may be found in strips from two to ten miles wide, traversing the state in a north easterly direction from about the center of the state and extending to the northern boundary. The price of these lands vary from three to ten dollars per acre for unimproved land, and eight to fifty dollars per acre for improved land, according to location and can be found in either Nacogdoches, Houston or Anderson counties in large tracts. The land of these counties is slightly rolling and contain many brooks which

make it a very desirable location for tobacco raising. The climate is mild, humid and very well adapted to tobacco raising. The rain fall is about 75 inches per annum, falling mostly between January 1st and June 1st, with occasional showers during the late summer and autumn.

The method of cultivation used by the department in making their experiments with tobacco in Texas, is no doubt a great improvement over the method generally used by the farmer in Texas. The ordinary method of cultivation used in Texas today by the cotton and corn producers is the same as was used a century ago. The only implement used is the sweep. The sweep consists of a light plow stock similar to the stock of a shovel plow used in the cultivation of potatoes, to this stock is fastened an iron foot, on which can be adjusted a shovel of any size, this is drawn by a single mule. The first operation in preparing a tract of land for a crop is to fasten a shovel four inches wide to the foot on this sweep stock and plow a furrow where every row of seed is to be put, if the land was cultivated the previous year, this furrow is made just half way between the two rows of old stumps of the last year's crop; after this furrow has been made, two more furrows are made with a six inch shovel so as to make a ridge where the first furrow was plowed, this ridge is then called the seed bed and in it the seed of the desired crop is sown. The space left between the rows unplowed is called the middles and is broken out with the same plow with which the first furrow is made any time after the planting is done, this operation is called "Breaking out the middles." When the crop is up and further cultivation is necessary to keep down the weeds, as this is the main object for which the Texan cultivates his crop, a flat winged shovel which cuts the ground from one to three inches deep according to the way it is held by the driver, is used. These shovels or "Sweeps" as they are called, cut a furrow from 10 to 30 inches wide, according to the size of the sweep used. This implement is somewhat difficult to hold so as to make it do good work if the operater is not used to it, but the southern laborer becomes so expert with it that he can cultivate the land very close to young plants without injuring them, and it is the opinion of the writer that for the climate and soil of Texas, no better implement could be used for the cultivation of the crop after it is planted. The only suggestion that I would make is to use them oftener than the average Texas farmer is inclined to do.

The principle improvement made by the Department of Agriculture in the cultivation of their tobacco experiment is to plow the land as it is plowed in the North and East with a turn plow which operation is termed "Breaking the land broadcast" by the southerners. This greatly improves the seed bed as it gets the whole field into perfect condition and prevents it from losing moisture.

The method used in producing the filler is not an expensive one as it is grown in the open field. Along in January a small piece of hummock land near a stream is cleared off, the wood and brush being used to burn over the ground in order to kill any foreign seeds that might be present and make the land mellow.

After the land for the seed bed has been turned over a small amount of cotton seed meal is applied and hoed in, the land is then raked off and the seed sowed. The bed is then either covered with brush or cotton cloth and as a rule, in a normal spring, needs no more attention until the plants are almost ready to set, when the brush or cloth is removed, to allow the plants a taste of the hot sun in order that they may better withstand the ordeal of transplanting. The preparation of the land for transplanting is not a difficult one, as the ground can be plowed broadcast almost any time during the winter and the fertilizer applied which consists usually of from fifteen to forty loads of cow pen manure per acre which can be bought at

(Continued on page 14)

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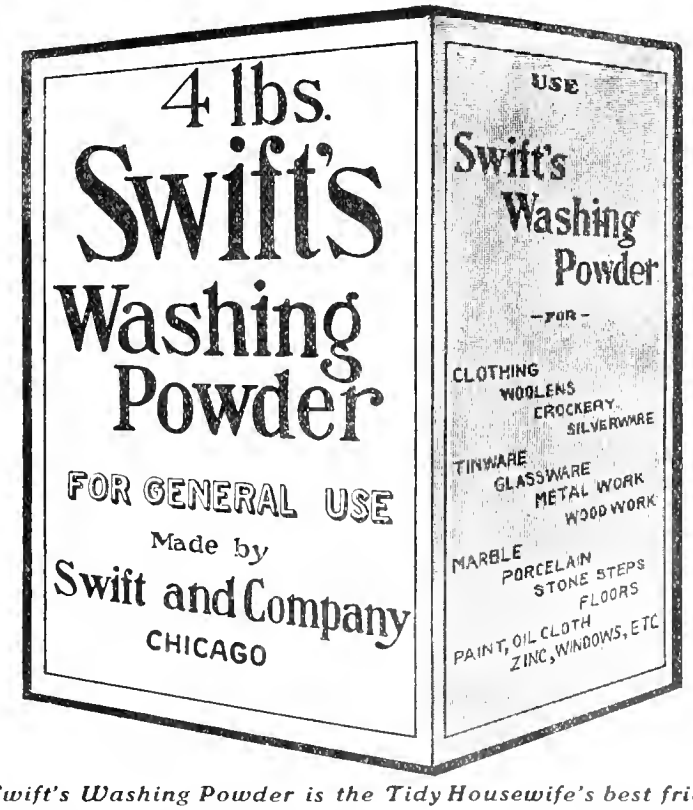

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Selection of Tobacco Seed Plants

(Continued from page 5.)

tions as could possibly be secured, produced the most perfect burn of any type of tobacco tested by the writer, grown in any part of the world. It has been usually held that the matter of burn in tobacco was influential almost wholly by soil or fertilizer conditions, but this experiment has shown that it is also strongly influenced by the type of the variety, and can be controlled and improved by seed selection and breeding.

In one of the fields of the valley most of the plants were destroyed by a fungus wilt disease. This disease attacked the roots of the plants, and entirely destroyed them, with the exception of three or four plants which were immune and several that were partly immune which produced abundant seed, but very few and small leaves. The seed from the immune or resistant plants, and from the semi-resistant plants were saved separately, and sowed in separate sections in the seed bed the following season. The seed from the resistant parent plants produced fully resistant seedlings which were transplanted to the field which had been destroyed the previous season. These resistant seedlings produced resistant plants, not one of which was attacked by the disease or injured in any manner by this fungus. The seedlings raised from seed saved from the semi-resistant parent seed plants, showed evidences of the disease and most of the plants died in the seed bed. Some of the plants that lived were transplanted beside the resistant plants in the field, but none of them produced healthy plants, the majority growing to about one-half the size of the resistant plants, then the leaves wilted, turned yellow and died. This experiment shows conclusively that tobacco plants resistant to fungus or other diseases or injuries transmit this quality to their offspring, and this principle offers a means of combatting some of these widely spread and destructive diseases.

Similar experiments have been carried out by the writer in the cases of the tobacco grown from the imported Cuban seed, the Havana seed and broadleaf varieties. In all cases great variations have been found, and by the saving of the seed protected from cross fertilization by the paper bag, it has been possible to produce uniform crops of the type of plants selected as seed plants. Several crops grown from specially selected Havana seed plants in the season of 1903, produced crops in 1904 which were sold first and brought the highest prices of any crops in that entire region. Many other illustrations might be given of the wonderful prepotency of the tobacco plant, and the results of seed selection and breeding, and many of these will be described in future articles, but those which have been given are sufficient to prove the great importance of this line of work to the tobacco grower.

Tobacco seed saved under bag, is larger, heavier, lighter in color, and produces more vigorous and uniform seedlings, than seed saved in the ordinary manner. The experiments of Charles Darwin has shown that self-fertilized seed is superior to cross fertilized seed in the variety. The tobacco flower is perfectly self-fertile, and will set seed perfectly under the paper bag, but at the same time it is easily cross fertilized. In the tobacco flowers there is secreted a sweetish honey like substance, which bees and many small species of insects, humming birds and other agencies feed upon. In passing from flower to flower, and from plant to plant the insects carry some of the pollen or male fertilizing element about on their bodies and in this way effect cross-fertilization. The common twelve pound manila paper bag sold at most grocery stores, is the best kind of a bag to use for protecting the flowers from cross-fertilization. The bag must be placed over the seed head of the plants selected for this purpose, before any of the flowers open, or if any of the flowers have opened, they should be pinched off and thrown away. In preparing the seed head for the bag, the lower sucker branches and top leaves should be removed carefully, and only the central cluster of flowers

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When most of the pods have turned brown indicating maturity, the stalks should be cut off, and the bags removed temporarily so that all of the small pods can be removed and discarded. After the seed heads have been trimmed up, the bags should be replaced, and the seed heads hung up in a dry place, as the attic where there is a free circulation of air. The secret in preserving the vitality of seeds, is in thoroughly air drying them after they have been harvested, and then preventing too sudden changes of temperature. The seed should be allowed to remain in the pods until spring, when they should be thoroughly threshed out, so that all of the seed is removed, and then separated with the seed separator described in the May issue of The Grower, so that only the heavy seed is used for sowing the seed beds.

In selecting seed plants in the field, great care should be used to find the best plants of the type that suits the grower. In order to do this, the number of leaves should be counted, the size of the leaves carefully measured, the shape of the leaves compared, the size and arrangement of the veins observed, the number of suckers counted, the uniformity of the ripening of the top and bottom leaves on the same plant studied and general appearance, body and other important characteristics taken into consideration. During cultivation suckering and other times, the growers should carry a number of tags about the field, and when a particularly desirable plant is found it should be marked. Too often the selection of seed plants is put off until topping is begun, when in the rush of work, the most desirable seed plants are topped. If the field is gone over carefully, and the selected plants carefully marked with stakes or other means, it is possible to make a much more effective selection than by the ordinary hit or miss method.

The improvement in the uniformity and quality and the increase in yield of tobacco secured by seed selection and breeding, is absolutely pure profit to the growers. It costs no more to raise uniform and good plants, than freaks, mongrels and poor plants. Not only is this true, but the freak plants actually injure neighboring plants which may be more desirable. This work costs the grower nothing, practical as well as experimental evidence has shown its value, and every grower should save at least a part of his seed in this manner this season. The saving of the seed under bag is so simple and practical that we are apt to underestimate its value, from the fact that we are frequently told that it is only the things which are so complicated that we cannot understand them, that are valuable discoveries. There is little doubt, however, but that the reverse is true, and it is the simple and practical things which are of the deepest scientific interest and importance. We must distinguish between the spurious and the valuable in information as well as in money, and it is the writer's belief that the simplest things are frequently the most valuable.

In the July issue of The Grower, the writer will present the results in crossing the native varieties of tobacco with some of the most valuable foreign varieties. The hybrids that have been secured give promise of being most valuable additions or improvements to the types of tobacco grown in New England.

Tobacco Culture in Texas.

(Continued from page 11.)

the pens at the small price of 25 cents per load. As the cattle are fed exclusively on cotton seed meal and hulls, this makes a very rich fertilizer and is easily obtained as every small town feeds from five to twenty thousand cattle every winter. The photograph above shows a field of tobacco grown from fifteen loads of cow pen manure to the acre. After the land has thus been plowed, tertilized and harrowed until smooth, it is let lay until about a week before setting time, which ranges from April 1st to June 1st, when a furrow is run with a bull tongue sweep plow where every row of tobacco is to be set. In this furrow can be put any commercial fertilizer that the grower wishes to use, at present there is not much used, but there is no doubt but what it would be profitable to use at least from three to five hundred pounds of some good starter per acre. After the land has been furrowed as mentioned above and the fertilizer applied or not, as the case may be, two more furrows are run with the same plow so as to make a ridge where the first furrow is run just before setting, which up to the present time, has been done by hand, this ridge is leveled off by a board fixed to the sweep stock so as to furnish fresh ground for setting the plants. When the plants are once set, any good method of cultivation will produce the crop but the one used in Texas at present is the sweep as described above, for any ordinary crop.

The crop is topped just as it puts out the bud and is harvested and cured in the barn exactly the same as Connecticut Havana seed is handled in Connecticut, of course the plants are smaller, there being from eighteen to twenty-two thousand to the acre and more can be put on a lath. After the tobacco is shed cured, it is striped in the usual way and the sand leaves, middles and tops are kept separate in order to facilitate in assorting. The tobacco is put in bundle as it is striped from the stalk and taken to the warehouse where it is packed. The packing consists of first fermenting the tobacco, then assorting it after which it is packed. Before the department began its investigations the tobacco was packed in cases, but what has been raised since that time has been packed in Cuban bales.

The fermenting process used by the department experts is the bulk method which is very satisfactory for filler tobacco. The process consists of packing the tobacco in large bulks of from five to ten thousand pounds, and letting it heat up to from 130 to 150 degrees Fahrenheit when it is turned, and if dry, a little moisture can be added, this process is kept up for about four or six months when the leaves become crossed in every direction by small white or grayish colored streaks. The tobacco is then cased so that it can be handled and assorted in light, medium and heavy filler according to the thickness of the leaf. It is then sized in lengths of eight, ten, twelve and fourteen inches, after which the tobacco is tied into hands of from 40 to 60 leaves, with a leaf, four of these hands are tied together with a small strip of bark called bast, and is called a carriotte, eighty of these carrottes are packed into a bale and covered with palm bark, the bale is then covered with burlap and is ready to ship. The tobacco improves with age however, and should not be used until some time after packing.

In considering the plausibility of a new industry in any part of this country the labor question is one that should not be overlooked, it is in Texas, as it is in other southern states, quite serious. The labor is very incompetent and shiftless and varies in different counties. Some counties as Lufkin, Texas, vote not to have negro labor and every negro is asked to leave the county, other counties solicit negro labor and have an abundance of it, the consequence is in one county we have plenty of cheap negro labor, and in another we have none, the counties without negro labor, however, have plenty of Italian labor which is little better because they demand higher wages, thus no definite price can be stated for labor and it ranges in the tobacco section from 75c to $1.50 per day according to the location.

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only from 600 to 900 pounds of filler tobacco, in the bundle has been produced from an acre of land, the price paid for labor is quite a factor in its production.

While Texas has in the past, and is today, producing a cigar filler that surpasses any other domestic filler produced, it does not signify that there is no good ground for improvement, for it is the writer's belief that by proper methods of fertilization, cultivation and seed and plant selection, that both the yield in pounds per acre and the quality of the filler can be greatly improved.

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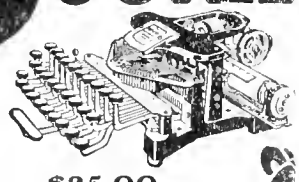

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Selection of Seed Corn

(Concluded from page 7.)

is warm is all right for this purpose. A room where house plants are kept is a good place, because if it is warm enough to keep the plants from freezing, it is warm enough for the germination of the samples of corn.

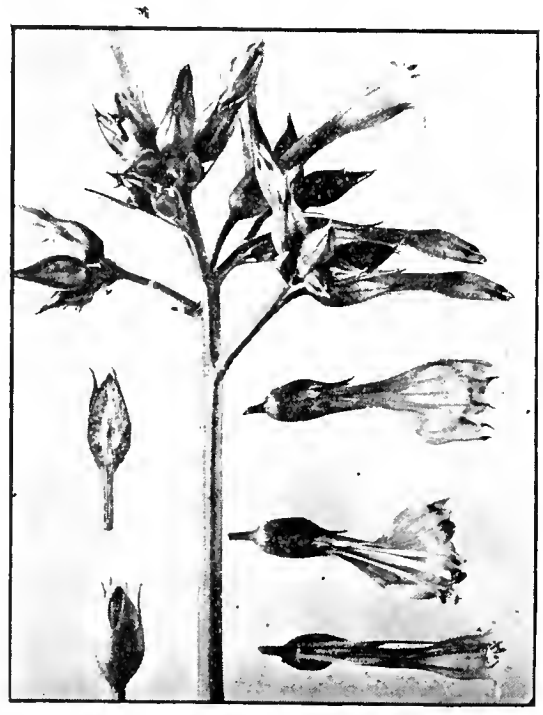
The box should be allowed to remain undisturbed for a week. At the end of this time, the top covering of sawdust should be carefully removed, the top loose cloth gently taken off so as not to mix up the samples. It will then be seen that there is a complete map or chart of the vitality of the seed corn. Some samples will have sprouted strongly and vigorously, while others will have sprouted weakly or not at all. This test will give a true indication of the vitality of the seed ears. The samples should be carefully examined, and if sample number three for instance shows poor vitality, ear number three should be taken out, carefully examined, and it will usually be found that it should have been discarded.

Every person making such a test, will lose all the conceit that they ever had, that they could tell the vitality of seed corn by aid of a jack knife. In a test made by Howard Brewer of Hockanum, Connecticut, this spring, out of a total of 220 ears carefully selected for seed, 72 were poor and would not grow, and were discarded. This test represents about the proportion of poor to good seed this spring in New England seed corn, and it should be the business of every farmer to carefully discard all of the poor ears, by means of this simple and practical test.

The germination test costs nothing, and takes a very little time in the spring. It is a simple business proposition, and it should be practised by every corn grower, no matter whether he grows one-half acre or one thousand acres of corn. One man in Iowa last year tested every ear of seed corn for three thousand acres, and figured that it meant an increase of over ten bushels an acre in the crop. This is simply one of the many thousands of instances reported by farmers last season, and there is no doubt but that this plan will mean the increase in yield per acre over the entire corn belt in the future.

After the seed ears have been tested they should be shelled, not more than a peck in a sack, and the sacks hung up in a dry place until the seed is needed for planting. If the seed corn is planted with a planter, the ears with large kernels should be shelled in a separate sack, the medium sized kernels in another sack, and the small kernels in a third sack. In other words the seed ears should be graded according to the size of kernels, large, medium and small, and the planters tested until an even drop can be secured.

Seed with weak vitality will grow, but will not produce well developed plants producing the largest possible yield. In view of the fact that the object of corn growing is to raise the largest possible amount per acre, it will be found necessary to test the seed corn, if this object is attained. In the July issue of The Grower, the question of corn cultivation and other problems connected with corn growing will be discussed. In a later issue the whole matter of seed corn selection and breeding, and the saving of the seed will be presented in the most careful and practical manner possible.



ARRANGEMENT OF THE PARTS OF TOBACCO FLOWERS.

The Cut Worm Remedy

There has been considerable comment through the Connecticut Valley concerning an article by Harry Ritch, which appeared in the Tobacco Leaf a short time ago, in this article Mr. Ritch stated that "one-half pint of raw terpentine to a barrel of water used in transplanting tobacco plants would successfully prevent them from being cut by the much dreaded cut worm." The cut worm is surely a much dreaded pest, not only to tobacco growers, but to all vegetable gardeners as well. It would not be wise, however, to place too much dependence in this turpentine remedy for the cut worm as it might not prove entirely successful in this section of the country. I have had no experience with it before this year, and as yet I cannot say that it is an absolutely sure remedy, and I would advise all who contemplate using it not to place too much confidence in it. The odor of the turpentine is what is offensive to the pest and I have found that when this passes away, which it does in a few days, the pest is apt to attack the plants as vigorously as if no terpentine had been used. Probably the surest remedy is the one which has been in use for some time, viz., Paris green and middlings mixed at the rate of one pound of Paris green to one hundred pounds of middlings. This mixture may be moistened with a little sweetened water and applied along side of the plants, or it may be sifted on the plants dry, either method of applying it is successful. Some farmers are using a small machine, which hitches on behind the setter and works on the same principle as a fertilizer sower, to sift this poison on their plants. Those who have used this machine speak favorably of its work.

J. B. STEWART.

Granby

There was a heavy frost in this section the morning of May 22. Thermometers registered 27 degrees above zero.

Farmers are busy here preparing their land for setting the 1905 crop of tobacco.

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The New England Tobacco Grower

VOL. VII. No. 5. HARTFORD, CONNECTICUT, JULY, 1905. $1.00 A YEAR

Corn Cultivation

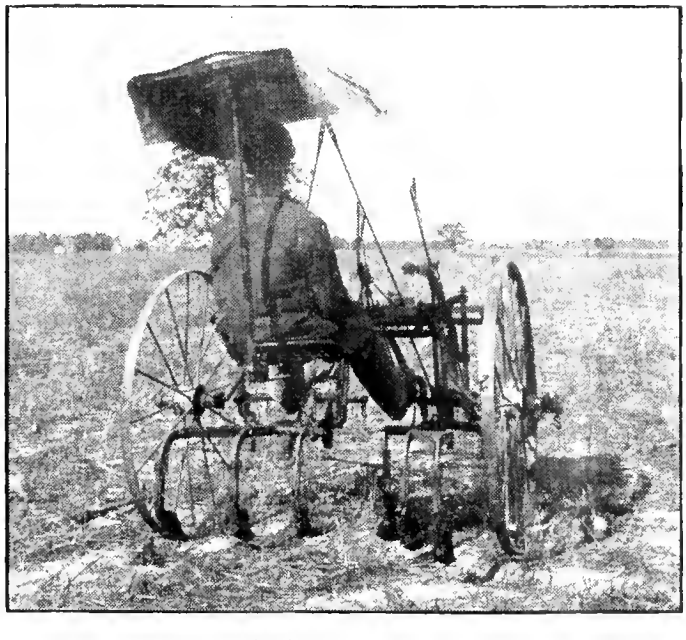
By A. D. Shamel, of the Bureau of Plant Industry, U. S. Department of Agriculture

THE methods of corn cultivation must be adapted to the individual conditions of soil and climate on every farm. It is impossible to give directions or make recommendations for the cultivation of the corn crop which will apply to all conditions, from the fact that every farm presents a different set of conditions from every other farm. However, there are certain general principles underlying the successful cultivation of the corn crop which hold true under all conditions and it is the purpose of this article to present these principles in a way that will make them of practical benefit to the farmers of New England.

The most important object in the cultivation of the corn crop is the destruction and eradication of weeds. The presence of weeds in the corn field exhausts the soil of its moisture and fertility which might otherwise be used up by the corn plants. It is a struggle for existence in the growing crop and weeds are naturally better fitted to survive in this struggle than the tender corn plant. Weeds interfere in the corn plant's receiving sufficient light and in many other ways compete with the corn plant for the elements necessary for plant growth. It is impossible to grow a successful crop of corn in a weedy field, and, therefore, it must be the object of every farmer to remove as far as possible these weeds from his fields.

In the second place the proper cultivation of the field during the growing season tends to conserve and save the soil moisture for the use of the corn plants. The moisture in the soil is carried from the subsoil, or lower layers of the soil, to the surface by capillarity. It is exactly the same principle by which the oil in the lamp is carried up through the wick to the flame. Under natural conditions without the stirring of the surface soil, especially where the surface of the soil is not covered by vegetation, this capillary action rapidly exhausts the soil of its supply of moisture. However, if the surface of the soil is stirred this capillary action is interfered with and the moisture retained in the soil. It might be compared to the cutting off of the wick between the oil and the flame. Numerous and careful experiments have repeatedly shown that where the surface of the soil is kept continually stirred the moisture is retained while where the soil is not stirred the moisture is rapidly exhausted.

In the third place the stirring of the surface soil tends to admit the air freely into the loose soil and in this way promotes the chemical action and the work of soil organisms in bringing the plant food in the soil into a condition where it may be utilized by the plants during the processes of growth.



CORN CULTIVATOR.

The small shovel type of cultivator extensively used in large corn fields.

(Concluded on page 4)

Shade Cloth Patent Invalid

Court Reports Adversely on Bill for Infringement of Mitchelson Patent

AN opinion of unusual interest to growers of shade tobacco has just been handed down by Judge Hale, of the United States Circuit Court, District of Massachusetts, adverse to a bill for infringement of the patent of Ariel Mitchelson, of Tariffville, under which has been manufactured the Ariel cloth, sold by J. B. Lane & Company of New York. The suit was brought nominally by Mitchelson and the West Boylston Manufacturing Company of Easthampton, Mass., as exclusive license under Mitchelson, against Andrew B. Wallace, of Springfield, Mass., in consequence of the sale of International, a similar re-inforced cloth, made by Amory, Browne & Company of New York, who were the real defendants. This case has been under way since the spring of 1903, and during its progress many prominent growers of the Connecticut Valley have testified as to the use of cloth, its construction, and its value for wrapper crops.

The novel feature claimed for the patent was the use in the selvage of strengthening cords, in connection with reinforcing strips of close weave, occurring at regular intervals across the breadths. The defense contended that these features were well known as strengthening agencies in many varieties of fabric, and could not be monopolized by the Mitchelson interests when used in shade cloth, and that their employment in this way did not constitute novelty such as to warrant a patent. The court took this view, and an opinion rendered May 10, 1905, after fully reviewing the recent growth of the shade growing industry in this country, and the increasing use of cloth specially constructed for strength and lightness, cited the law as to the requirements for patentable novelty, and found the patent in suit lacking in this essential and therefore invalid, concluding as follows:

"Applying the principles of the cases cited, and calling to our aid the well-known principles of patent law as applied to patents upon fabrics, we come to the conclusion that the patent in suit does not present any original conception or inventive thought. The product constituting the patent is, in the opinion of the court, an aggregation of old devices, each device maintaining its old function, and producing nothing novel or patentable. In our opinion, the fabric brought before us in this patent cannot be held to be a new invention.

"Bill to be dismissed, with costs."

As this decision undermines the foundation for the recent widely circulated warnings against infringement and threats of prosecution, users of re-inforced or corded cloth not made under the Mitchelson patent may now feel secure against molestation, and intending purchasers may be governed in their choice of cloth by a consideration alone of the qualities of the brands now on the market.

Tariffville

The rain has been timely. The tobacco crop is now well advanced for the season of the year. Without exception, every farmer in this section of the district has a good stand, and the plants are doing well. Some of the more procrastinating farmers have not finished setting as yet, but if the damp weather continues they expect to finish before July 4.

F. B. Griffen, superintendent of the Krohn Tobacco Company's plantation, at North Bloomfield, finished setting his 125 acre crop June 10, and he has one part of a field which is sheltered by a hill and strip of woods from the westerly winds that will probably be ready to top by July 15. This is probably the most advanced piece of tobacco in this section, although Ariel Mitchelson has a close second and George W. Harris, superintendent of the Hartford Tobacco Association's plantation, is not far behind.

From indications now there will be some early harvesting this year. The heavy frost of May 22 did considerable damage to tobacco but the slight one that followed on June 6 did no damage other than check the growth of tobacco, the warm weather since, however, has more than made up for the injury done by the frosts.

The cut worms have led the farmers a chase this year and many remedies were used for their extermination, all of which did some good, but probably the most satisfactory was the middlings and paris green, mixed in the proportion of one pound of paris green to 50 pounds of middlings and dusted on the plants just after setting.

I wish to call the attention of the readers of The Grower again to the experiments being carried on in this section with Russian Vetch as a cover crop. Dan Cooley, J. S. Dewey and Dr. Monson each have about one-half acre of this vetch sowed this spring and all have a fine stand and promises of a good seed crop. If the seed can be grown in this country so that its cost will be reduced to a minimum, it will be more favorable as a cover crop.

J. B. STEWART.

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The New England Tobacco Grower

HARTFORD, CONNECTICUT, JULY, 1905

Florida Tobacco Industry

Improvements Noted in the Growing of the Leaf in That State

MANY of the early settlers who went to western Florida were from Maryland and Virginia. They had been very successful in producing tobacco on a commercial scale in their states and took with them quantities of tobacco seed which they planted in the hammock lands of Florida. Here they grew successful crops, but the industry amounted to very little until cigars came into general use and the superior quality of Florida tobacco as a cigar wrapper leaf was recognized.

During the period between 1840 and 1861 Gadsden County enjoyed an enviable reputation for its production of fine cigar leaf tobacco and the planters were prosperous; but when hostilities between the states began the tobacco industry was almost completely wiped out. Most of the growers entered the army and the few who remained were too busy providing the necessities of life to give attention to the production of such crops as tobacco. After the close of the war a few widely scattered farmers grew small crops, but found very slow sale for their product and were compelled to allow three or four crops to accumulate before a purchaser could be found; and then the prices were not remunerative.

These conditions obtained until 1887 by which time the few who had persevered and struggled to keep the industry alive and make it profitable were very justly discouraged and on the verge of allowing tobacco to give place entirely to cotton and corn, which were more profitable and their production was attended with fewer vicissitudes. Just at this critical period, however, a certain cigar manufacturer purchased several crops of the Florida leaf and at once recognized its superior quality and excellent adaptability for cigar wrapper purposes. Other manufacturers followed his precedent and the "old Florida wrapper" regained its former popularity and became again well established in the trade and much sought after on account of the spotted appearance of the leaf. It was with such favor among the manufacturers that many of them invested largely in the tobacco lands of Gadsden County, Florida, and Decatur County, Georgia, and began to grow their own wrappers.

This was a tremendous impetus to the industry. Real estate advanced rapidly in price and was bought in large tracts. The farmers found ready sale for tobacco at paying prices and the acreage increased rapidly. In 1880 there were less than one hundred acres of tobacco in the state. This was increased to more than one thousand by 1890, and in 1900 the acreage was estimated to be at least eight thousand. The development of the industry since its revival in 1887 has been phenomenal. Today Gadsden and Decatur Counties are undoubtedly producing the highest priced tobacco grown in this country and the industry is firmly established on a substantial basis. The exhibits from these counties have been awarded the highest honors in this country and abroad. At Paris, Chicago and St. Louis, where they came in competition alike with the West Indies and the Orient, the grand prizes were won by our domestic article.

Both the wrapper and filler types were grown in the open field until very recent years. In 1896 an experimental shade was erected one mile from Quincy, the county seat of Gadsden County. This shade covered two acres of the best wrapper producing soil. Slats were used for covering the frame-work, after the manner of the pineapple shades, and were so arranged that about one-third of the sunlight was excluded. Under this structure the tobacco made a much more rapid growth than that grown in the open when fertilized and cultivated in the same way.

The yield was considerably increased and the experiment pre-eminently successful in almost every particular. The unprecedented yield of fine wrapper leaves was most gratifying and their quality, finish and elasticity made them peculiarly fitted for wrapping fine cigars.

This experiment created the greatest interest among the growers and manufacturers and its success led many of them to erect similar shades on a larger scale the following year. Those who ventured in the new industry were not disappointed but felt confident that the way had been opened for the production of a very high grade of domestic cigar wrappers. Further experiments soon demonstrated that Sumatra tobacco gave better results than other varieties when grown under shade.

The old Florida wrapper has been entirely superceded by the more delicate and finer textured Sumatra.

During the nine years that have transpired since the birth of the shade industry, rapid strides have been made in the improvement of methods of production and manipulation of the crop. These improvements resulted from numerous experiments, many of which were of a very expensive nature. Untiring efforts have been made to successfully meet each new demand from

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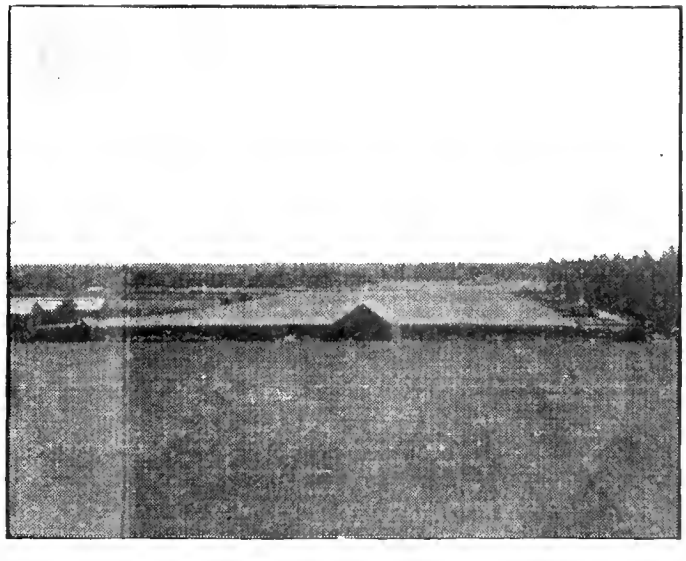
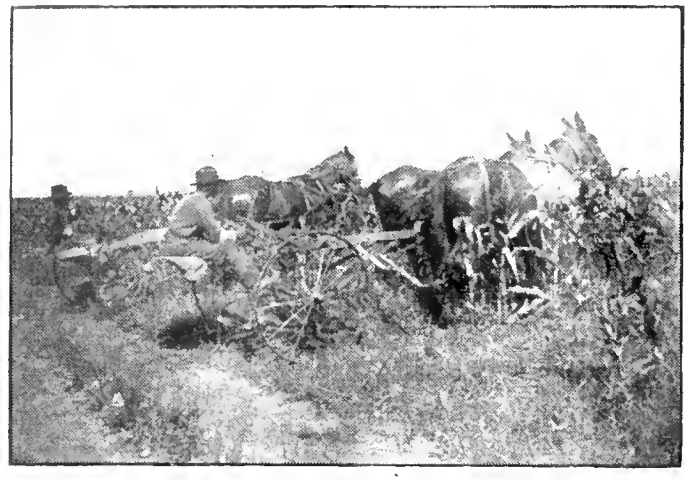


A FLORIDA TOBACCO PLANTATION.



WESTERN CORN CULTIVATORS.
Disc and "surface" cultivators at work in Illinois corn fields.

Corn Cultivation

(Concluded from page 1.)

In general it may be said that the constant stirring of the surface soil during the growth of the plants in the field tends to conserve the soil moisture for the use of the crop, improve the condition of the soil for the development of usable plant food and remove the competition of noxious weeds.

On most soils shallow cultivation seems to be most efficient and successful in accomplishing the objects of cultivation for corn. Of course, the depth of cultivation will necessarily depend upon the character of the soil, it being generally understood that in the heavy, clay soils it is necessary to loosen them up to a greater depth than in the case of the lighter, sandy or loamy soils. However, it is frequently maintained by many corn growers that deep cultivation is preferable to shallow cultivation. In an extensive series of observations and experiments made by the writer on this subject in Illinois, and other western states, it was found that the best results from deep cultivation were obtained during a wet season and the most injurious effects were noticed during a dry season. It was also found that in all cases where thorough shallow cultivation of the surface soil was practiced the best results in yield of both forage and ears was secured. The results of these experiments have led the farmers to carefully experiment and to the general use of surface cultivators or cultivators which stir the surface, during the entire season. Of course, in any field where the weeds get a start, the field must be cultivated so that these weeds are removed and if it is necessary to cultivate deeply for this purpose, better results are obtained, than by letting the weeds grow. However, the writer firmly believes that if the proper methods of handling the land are practiced, particularly in the ploughing and cultivating of the fields before the corn is planted, followed by frequent shallow cultivation, it will not be necessary to cultivate deeply in order to destroy the weeds. The reason for shallow cultivation lies in the fact that if a loose mulch is maintained on the surface of the soil the soil moisture is saved and the air allowed to percolate through the upper layers of the soil, while the roots of the corn plants are not injured by the cultivator shovels. In some sections in New England as well as in some sections of the west, it has been a frequent practice to ridge the corn rows, especially at the time of the last cultivation. The reason for this ridging seems to lie in the fact that the farmers believe that by so doing they will tend to hold the corn plants up and prevent them from falling down and lodging when the heavy ears are maturing on the stalks. In an extensive series of experiments by the writer on this point fields were ridged according to the ordinary practice in comparison with adjoining fields which were cultivated shallow and level during the entire season. In every case it was found that the corn plants stood up as well if not better under level cultivation than they did where the practice of ridging was followed. The number of times the field should be cultivated during the growing season depends upon the rainfall and other climatic conditions as well as the condition of the soil. During a dry season the field should be cultivated more frequently than during a wet season. The largest yields of corn known to the writer have been produced by shallow cultivation once or twice a week during the growing season and continued until the ears were almost mature. In one particular case the grower arranged a peculiar cultivator for the purpose of late cultivation. Heavy boards which could be drawn between the rows were arranged in the form of a drag and stout spikes were driven through the boards so that they projected two or three inches on the under side. A horse was hitched to this cultivator and it was pulled back and forth between the rows continuously until the ears were almost mature. Since the writer has seen a number of fields treated in this way and always with good results. Of course, this frequent cultivation is more necessary during a dry summer than during a wet season.

Any injury to the roots of the corn plants results in a lessened yield of the crop. The roots of the corn plant penetrate every part of the surface soil between the rows and between the plants in the row. If a corn plant is carefully removed from the soil or the earth is washed away from the plants as the stand in the field, it will be found that by the time the corn is ready for the first regular cultivation the small, fibrous roots have extended in every direction and make a perfect "mat" near the surface of the soil. These small, fine roots furnish the plant food and moisture for the use of the growing plants. If they are cut off they do not grow again and thus reduce the elements of plant food and moisture necessary to the healthiest development of the plant. In a series of experiments extending over three years, conducted by the writer at the Illinois Experiment Station, in which the roots of corn plants were cut off with a sharp instrument about six inches from the plants to different depths, it was found that the yield of the crop during these three years was reduced almost in exact proportion to the depth of this root pruning process. Where the pruning was carried to a depth of two inches the average yield was sixty-two bushels per acre, the yield was forty-seven to the acre where they were pruned to a depth of four inches, and where they were pruned to a depth of six inches the yield was thirty-one bushels per acre. These experiments were carefully conducted and repeated hundreds of times under all possible conditions with the idea of giving this test a perfectly fair trial. It can be safely said that any injury to the roots during the growth of the crop reduces the yield and is detrimental to the profitable growing of a corn crop. It is a matter of common observation on some farms that when the cultivator reaches the end of the corn rows in the field it is necessary to pull off a mass of corn roots from the shank of the cultivator before the next row is cultivated. The writer has repeatedly seen the Connecticut farmers stop at the end of a row and pull off these bunches of fine roots and throw them in a fence corner. Such a practice must necessarily result in a poor yield of a poor quality of corn.

The best kind of a cultivator to use for corn depends on soil conditions. After long experiments it has been found that the small shovel sort, with a number of shovels on each gang which stir the soil at the surface to a depth of from one to two inches without doing serious injury to the corn crop, gives the best results. During the last cultivation or cultivations the shovels should be kept as far away from the plants as possible. The large roots developing near the surface at this time are easily cut off and injured by running the shovels near the plant. Weeders have been found successful on sandy or loamy soils when used often early in the season.

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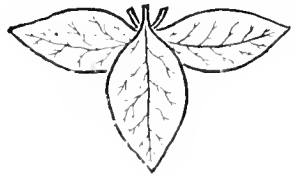

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Disc cultivators, as well as the so-called surface cultivators, are successfully used under certain conditions. Most New England farms grow enough corn to require the use of a cultivator which cultivates a row at a time. Usually these machines cultivate only one side of the row or run between the rows. The small cultivators which run between the rows are useful and give good results in many cases. The same results can be obtained at a much smaller outlay of money with the row cultivator. The use of improved machinery in the cultivation of corn tends to cheapen its production and enable the New England farmer to raise more corn and thus supply the demand for this crop in the New England States. Large quantities of corn are now imported from the west. This condition of affairs is not as it should be and there is no reason why the New England States cannot produce enough corn for their own needs.

South Manchester

Last year was recognized as the banner year for tobacco growers but today the outlook is said to be even brighter. Much difficulty was experienced in the early part of the season owing to the dry spell, but the rain has more than made up for the difference. The farmers have most of their crop set out.

At the farm of the Connecticut Sumatra Company sixty-five acres have been transplanted and the plants are doing well.

Wapping, Hillstown and other tobacco centers in this vicinity report a prosperous outlook. During the early transplanting much trouble was experienced from cut worms and these were even more troublesome than in previous years.

An even crop is looked for this year which will surpass that of last year, which was about as good as the tobacco growers wished for.

Many of the growers who still have some of their last year's crop on hand have been disposing of it. In Hillstown several sales have been made. Arthur Manning has shipped fifty cases to Cincinnati, O. Frank Buckland has sold his crop to Hartman of Hartford and Bert Hills has shipped to a Westfield, Mass. firm. Arthur Manning of Hillstown sent tobacco to the St. Louis fair and recently he received a letter announcing that he had been awarded the grand prize for the best exhibit of Connecticut tobacco. The prize was a silk badge on which was announced what the prize was awarded for.

A Renowned Tobacco

Lattakia. Beirut, tobacco (Abou Riha) is an article of commerce well known in Europe and America. It is black in color, owing to its fumigation by the Nusairieh mountaineers in the smoke of a tree called "elezzer" or "ezr," which imparts to it a peculiar aromatic flavor. This fumigation lasts for from seven to nine months, but only produces the desired effect during those of winter and spring, although the tobacco is still fresh and green in summer when it is hung to the rafters for smoking purposes. The "ezr" grows wild, seldom attaining the size of the oak, and gives out its aromatic odor when burned in the green state. It is a native of the Nusarieh Mountains and not found elsewhere, so it is claimed. Last year the Lattakia tobacco crop amounted to 6,000 bales, as against 8,000 bales for the preceding year. A bale weighs 87 to 92 kilos (191.4 to 202.4 pounds). Most of it goes to England at 14 to 24 cents per pound. It was rumored last year that the American tobacco trust was trying to secure a monopoly of the Lattakia tobacco product. It already controls the licorice-root industry in the Lattakia and Alexandretta districts. An average crop of Lattakia tobacco, as far as it is available for export, is worth about $350,000.

Hindoo Studies Tobacco

R. B. De, a graduate of the University of Calcutta, India, is at New Haven to take a course of study on tobacco culture at the Connecticut Agricultural Experiment Station. He owns large estates in India and will grow tobacco extensively on his return after a course at Cornell.

Influence of a Tent

On Soil and Atmosphere. By J. B. Stewart, Bureau of Soils, U. S. Dept. of Agriculture

LESS than two decades ago, the method of growing tobacco, under shade, was unknown. Since that time, however, it has developed so that it now forms one of the most interesting and startling features of agriculture. At first a shade was made by weaving slats on wire, supported by posts, nine feet high, but later, a cotton canvas was made to take the place of the slats. With this cotton canvas covering instead of slats, came a new life to this method of agriculture. It spread from the state of its origin not only to several states in the Union, but to European countries, and the islands of the sea, and instead of being used exclusively for the tobacco crop, as it was at first, it has spread and is now used quite extensively in the production of pineapples, tomatoes, lettuce and other vegetable crops.

It has been found, from practical experiment, and casual observation, that all plants produce a more rapid and larger leaf growth under the tent than when grown under normal conditions, other conditions, such as soil, fertilizer, cultivation, etc., being the same. Now the question arises, what are the physical conditions produced in the soil and atmosphere, by this artificial shade, which for convenience we will hereafter call a "tent," that influences the plant to make this rapid and abnormal growth? Is it entirely due to the effects of the absence of a small quantity of light? or is it due to some other cause? These questions we will not endeavor to discuss in this short article but we will endeavor to present the results of a season's records and observations in such a way that every reader can form conclusions for himself.

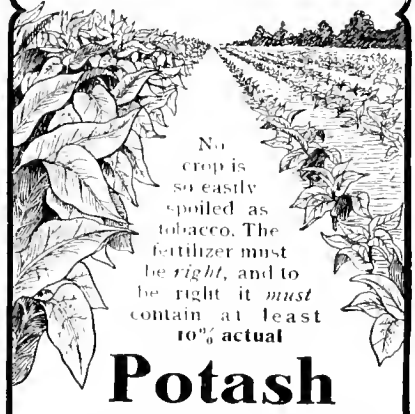
In the season of 1901, the writer, in the employ of the Bureau of Soils, United States Department of Agriculture, was assigned to this work. Tariffville, Connecticut, was selected as a favorable locality to make the study of the effects of the tent upon the soil and atmosphere, because the Bureau's experts were conducting an experiment there with the tent tobacco, and they had fields, part of which were covered by a tent and part not covered, while on the whole field the same crop (namely tobacco) was grown; like fertilizer was used and the same method of cultivation was employed.

The work was carried on in several fields with similar results for each field, therefore we will present the records and observations of but one field in this article. This field contains twelve acres of land, eight of which, were tented and four not. This field is level and is composed of a heavy, sandy top soil to the depth of one foot, and is underlayed with clay subsoil. This entire field received the same treatment inside and outside of the tent, and the method of study used to obtain the results given below was as follows: A careful determination was made, each day, of the moisture content of the soil to a depth of nine inches, and twice each day, at 7 a. m. and 2 p. m., of the relative humidity of the atmosphere. Records were kept of the rainfall, twice each day at 7 a. m. and at 2 p. m., of the temperature of the soil to a depth of three inches and of the temperature of the atmosphere, also of the maximum and minimum reading of the thermometer for each 24 hours, one set of determinations and records.

This work was carried on for a period of 34 days, from July 29th, to August 31st, 1901 inclusive. To facilitate the study of these results we will divide them into two parts, that of the soil and the atmosphere and we will take up the results of the influence of the tent upon the soil first. For this purpose I wish to present the following table:

A Tobacco Grower's Profit

is dependent upon a properly balanced fertilizer.


No crop is so easily spoiled as tobacco. The fertilizer must be *right*, and to be right it *must* contain at least 10% actual
Potash

Test it: Supply one patch with fertilizer with plenty of Potash, another with little or no potash, and note the results. Every tobacco grower should have our little book, "Tobacco Culture"—it will be sent free—write to:

GERMAN KALI WORKS, 93 Nassau St., New York

It will be noticed in the table that on July 29th, there was 2.64 per cent. more moisture in the soil under the tent than there was outside of the tent. This was in favor of the plant growth because the land at that time was very dry. On August 7th just after a heavy rainfall of 3.39 inches, we have the reverse conditions of 1.42 per cent. less moisture in the soil in-

RECORD OF SOIL MOISTURE AND RAINFALL (1901).

	Inside tent.				Open field.				
Date	0-3in.	3-6in.	6-9in.	0-9	0-3in.	3-6in.	6-9	0-9	Rainfall.
July 29	20.11	19.93	18.87	19.73	19.31	16.55	15.39	17.09	
" 30	19.64	20.85	18.68	19.72	18.75	21.00	18.19	19.44	.01
" 31	21.56	22.87	21.20	21.87	18.20	19.15	18.50	18.61	.28
Aug. 1	23.14	22.67	21.08	22.29	21.29	20.64	17.09	22.99	.67
" 2	22.90	22.98	20.68	22.18	22.00	22.10	18.41	20.61	
" 3	23.76	22.02	20.21	22.00	22.36	21.50	18.90	20.92	.07
" 4	23.56	22.20	21.21	22.33	22.53	20.30	19.99	21.04	.33
" 5	22.51	22.28	20.51	21.76	20.20	20.20	18.86	19.75	
" 6	22.62	21.19	20.42	21 51	19.51	19.01	17.93	18.83	
" 7	26.18	25.86	25.43	25.92	30.15	27.94	23.91	27.31	3.39
" 8	26.10	25.62	23.28	25.10	25.22	25.22	22.81	24.42	
" 9	24.85	23.89	23.07	23.93	24.93	23.91	22.13	23.66	
" 10	23.23	23.33	23.47	23.30	24.47	23.42	22.25	32.48	
" 11	23 92	24.00	23.29	23.73	24.38	24.58	23.57	24.14	.07
" 12	24.07	23.97	23 06	23.70	23.45	23.31	22.63	23.13	
" 13	23 12	23.12	22.22	22.82	22.20	22.34	22.92	22.18	
" 14	22.68	23.05	22.73	22.82	21 92	22.79	20.68	21.76	
" 15	22.64	23.14	22.17	22.59	21.68	22.80	21.62	22.03	
" 16	23.21	23.60	22.84	23.21	22.07	22.70	21.01	21.93	.02
" 17	23.35	23.80	22.27	23.14	22.28	22.35	20.40	21.67	
" 18	26.30	23.90	22.80	21.33	27.30	23.40	20.80	23.85	.97
" 19	21.61	24.22	22.37	23.73	23.81	23.31	20,88	22.68	
" 20	27.63	26.84	24.77	26.41	28.40	26.19	23.00	25.86	.35
" 21	27.90	26.70	24.80	26.46	28.40	26.30	24.00	26.23	.30
" 22	26.10	29.10	24.62	26.70	27.18	25.18	23.95	25.13	.43
" 23	25,80	25.16	24.40	25.12	25.10	24.90	23.50	24.50	
" 24	25 01	24.22	24.11	24.44	23.14	24.76	23.75	23.88	
" 25	28.02	26.05	25.18	24.41	30.10	27.18	24.60	27.29	.03
" 26	27.51	26.43	24.82	26.25	28.14	27.06	24.22	23.17	
" 27	26.25	26.18	24.48	25.63	25.75	27.00	24.17	25.64	
" 28	25.19	25.09	23.95	24.74	24.12	25.32	23.91	24.45	
" 29	24.75	24.62	23.70	24.35	23.73	26.50	23.43	24.55	
" 30	24.72	24.50	23.08	24.10	23.30	25.23	23.03	25.85	
" 31	24.26	24.58	23.28	24.04	22.83	24.25	23.30	23.46	

side of the tent, than we have in the field under normal conditions, and so it is for the entire period for which the determinations were made. A few days of dry weather took the moisture out of the land not covered by the tent, faster than it did out of the land covered by the tent, and after a heavy rain we have the reverse conditions, the land under the tent held less water than did the land not covered by the tent. This is due to the fact that the land inside the tent did not crust in dry weather but remained friable through both wet and dry periods.

The influence of the tent upon the temperature of the soil is very marked and as space prevents me from giving full records, I will give the average temperature of the soil at 7 a. m. each day for the entire period which was 68.16 degrees Fahrenheit, for the inside of the tent and 57.50 degrees for the outside of the tent. This gives us a difference of 10.66 degrees which means that the soil to a depth of three inches was 10.66 degrees warmer at night, inside of the tent, than it was for the corresponding depth outside of the tent. Now when we realize that plants grow faster at night than they do in the day, provided the temperature does not get too low, this increase of temperature of the soil must have a great influence. At 2 p. m. we have an average temperature of 72.22 degrees Fahrenheit for the inside of the tent and 73.00 degrees Fahrenheit, for the outside of the tent. This gives us .78 degrees more heat in the soil under normal conditions at 2 p. m. than under cloth. This may be accounted for in the smaller percentage of moisture in the soil outside to evaporate, and keep the soil from cooling in the heat of the sun

(Continued in next number.)

Florida Tobacco Industry

(Concluded from page 3.)

the manufacturers regardless of the cost of the experiments involved.

It has been found that only certain sections of the soil are well adapted to the production of fine Sumatra wrappers. The growers who have studied the results of growing this type of tobacco on the different soil types, can readily distinguish between the desirable and undesirable location for erecting shades. There are other characteristics of far more importance in these soils than their mechanical composition, which best adapt them for shade tobacco. The Cuban or filler variety also does best on certain well defined soil areas but has a wider range than the Sumatra.

The original slat form of shade still finds favor with most of the Florida growers, although cheese cloth is used quite extensively.

The slat shade is not so expensive as cloth which probably accounts in a large measure for its popularity. Less water is required to mature a crop under slats than under cloth but the crop is in greater danger of being attacked by the horn worm and other insects.

Practically all of the cloth and many of the slat shades are provided with systems of irrigation. The system most generally used is what is commonly called "trough irrigation." This consists of a series of wooden boxes, with open tops, about 16 feet long and 10 inches wide by 10 inches deep. These boxes are bolted or nailed together at the ends, making a continuous trough of any desired length. They are arranged in the field according to the topography of the land. A central trough passes through the field along the "divide" or its greatest elevation with laterals projecting at intervals of 100 feet or more and extending across the entire field. The arrangement of the rows must be such as to allow a very gradual fall away from the troughs so that a small stream will run slowly down between the rows through their entire length. Outlets for the water are made between the rows of tobacco and provided with stoppers so that only fifteen or twenty, or as many as the flow of water will supply, are opened at one time.

Where the land is level the overhead system has to be used. This consists of a series of spray nozzles extending directly upward for two or three feet above the top of the shade and arranged at the proper distance apart to give the entire field a uniform spray. The nozzles are supplied with water through a series of iron pipes resting upon the framework of the shade.

The improvements in the construction and manipulation of curing barns and packing houses have kept pace with those in methods of growing.

The modern tobacco barn of Florida is well provided with the best means of ventilation and can be closed very tightly when occasion demands it. Many of them have water pipes, with spray nozzles attached, extending over the roof for the purpose of producing an artificial damp when a natural one does not come at the proper time.

The packing houses are of the newest and most improved type. They are equipped with steam heat and all modern conveniences for manipulating tobacco in the most expeditious manner. Every detail of the warehouse work is given the closest attention by trained superintendents and the work of each individual carefully inspected. There are seven of these large warehouses in Quincy, with a capacity for handling four or five million pounds of tobacco annually. They give employment to more than 1,000 men and women who have been carefully trained in all the details in the work of preparing the tobacco for market.

The tobacco industry of Florida and Southern Georgia presents one of the most striking examples of modern intensive farming on a large scale. It has brought wealth and prosperity to the people of this section and has induced many to come from other states and settle. Other industries have been revived and benefitted to a very great extent. Florida no longer depends upon tropical fruits alone for an enviable reputation but is almost as well known on account of the tobacco as the orange industry.

Poquonock

A. N. Graves, the successor of the United States Tobacco company, set out twenty-five acres of Connecticut seedleaf under shade. The balance of the plantation was planted without shade.

Tobacco setting is completed and with the recent rain the outlook is good for the season's crop in this locality which is considered the earliest in the Connecticut Valley. Planting began on May 1, and notwithstanding the dry spell continued without interruption. The farmers however took the precaution to re-set failures immediately and the consequence is that the crop looks more uniform than was anticipated.

WANT ADVERTISEMENTS.

Advertisements under this head cost one cent a word each time; no advertisement taken for less than twenty cents; cash or stamps must accompany orders, which should be received by the 25th of the month.

TOBACCO LAND ON SHARES—I offer Tobacco Land to rent. Sheds for ten acres. Apply at once, in person. Chas. F. Fowler 140 Union St., Westfield, Mass.

WANTED TO PURCHASE—Second hand tobacco baling press. Box 38, care of New England Tobacco Grower.

WANTED—Distributer for the output of a small cigar factory making a specialty of $25 and $30 goods. Box 34, Care The New England Tobacco Grower.

WANTED—Second-hand green bone cutter D. L. B., Box 19, Rockville, Connecticut.

FOR SALE Canadian hard wood ashes. Try this fertilizer. George Stevens, Peterboro Canada.

JENKINS & BARKER,

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Cuba forbids export of Yagua. Porto Rico will supply demand through

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RUSSIAN VETCH

THERE has recently been introduced in New England a new cover crop for tobacco fields. In view of the fact that at the present time we have no fully satisfactory crop for this purpose, any new crop which seems to promise good results should receive the attention of all tobacco growers. Rye is the most satisfactory cover crop in use at the present time, but there are many well founded objections to its use, and it does not fully meet the demands of a successful cover crop for tobacco lands.

The Russian Vetch is a legume, closely related to the clovers, and has a peculiar spreading habit of growth which makes this plant particularly well adapted for cover crop purposes. The seeds are large, of strong vitality so that it is comparatively easy to get a stand during the summer and fall season.

In the states of Washington and Oregon, it is reported that the crop reseeds itself, and grows there without difficulty. In fact, it might almost be classed as a weed, so far as its hardy qualities are concerned. In New England where it has been grown it has withstood the winter as well if not better than rye. It is a drought resistent crop, and when once started needs little moisture to make its growth. This drought resistance is partly due, at least, to the extensive root development of the plants, which reach into every niche and corner of the surface soil, and go down into the subsoil for considerable depth. This root development is an excellent thing for the condition of the soil, as it breaks up the hard places, and makes an open porous soil for the succeeding crops.

The vetch plant is a legume and consequently a nitrogen gatherer. It is asserted that a single crop will add nitrogen to the soil that would cost from sixteen to forty dollars per acre if purchased in the form of commercial fertilizers. Any reduction in the outlay for cotton seed meal or other form of fertilizer will be so much profit to New England tobacco growers. Like clover and alfalfa the vetch plant is valuable for feeding purposes, in some reports the claim being made that it is superior in feeding value and digestibility to either of these crops. It can be best utilized for pasture, but can be cut for hay. As nearly all tobacco growers, keep more or less dairy stock, this addition will be of special value from this standpoint.

The seed should be sowed immediately after the tobacco crop has been cut. It can be sowed broadcast or in drills. So far as our information now goes, it can be seeded the same as rye, or if desirable with rye. When sowed broadcast, one and one-half bushels of seed per acre should be used, but in drills only a bushel of seed is required per acre. The seed can be secured from all reliable seed stores, but care should be taken that the Russian or Polish varieties are secured. There are a number of varieties but all may not stand the severe New England winters.

The crop can be plowed under in the spring, as is done in the case of rye. This season we recommend that farmers sow a small amount of this seed, say one-quarter to one acre, and if it meets their requirements the use of the crop can be extended next season.

It is said to be most valuable for reclaiming wornout soils, and if this is true it can be made to be of great value on many farms now not under cultivation.

CORN CULTURE

THE principles underlying the successful cultivation of the corn crop, are discussed in an article in this issue of The Grower. The kind of cultivator, and methods of cultivation, must necessarily vary to suit the different kinds of soil on individual farms. However, there are certain well founded principles which apply to all conditions, that should be understood in order to intelligently cultivate the crop and get the best results. As is emphasized in the accompanying article frequent shallow, level cultivation has been found to give the best results, both in the yield of the crop and the tilth or condition of the soil at the end of the season. In New England we have not followed this practice as a rule, and it would be a most valuable thing for our farms, if the farmers would try new plans of cultivation, and find the most successful plow. About the time the corn begins to ear, we frequently have a long spell of dry weather. It has been conclusively demonstrated that by frequent stirring of the surface soil at this period, it is possible to retain the soil moisture for the use of the growing crop and at the same time give to the plant the best possible condition for filling out the ears and producing the largest possible yield of forage.

The corn crop is one of the most important industries of New England agriculture. At the present time the home production does not supply the demand for feeding or other purposes. It is high time for the New England farmers to take up the questions of varieties best adapted for dairy feeding, or other purposes, and apply the most improved methods of cultivation for the production of sufficient corn to supply the demand.

BAGGING SEED PLANTS

THE time will soon be at hand to select tobacco seed plants. The past season has proved the value of the practice of saving seed under bag. In The Grower, the method of making the selections of seed plants and the use of the bag has been fully explained, but in order to remind the growers of this matter a few notes are presented giving the main points as simply as possible.

Select the best plants in the field for seed purposes. Pay attention to the size, shape and number of leaves on these seed plants. Save only those plants which produce the type of leaves which it is desirable to grow in succeeding crops.

Use 12 pound paper bags, with roof shaped bottom. Place the bags over the seed heads of the seed plants, before any of the flower open. Break off all of the sucker branches so as to give the best possible circumstances for the development of the seed. Look at the

bags occasionally and see that they are pushed up the plant during this period of extremely rapid growth, and do not crowd the flowers.

When the pods have turned brown, cut off the plants, hang them up in a dry place with the bags remaining over the seed head, and allow the seed to get thoroughly dry.

When the seed has thoroughly dried out, shell and use a tobacco seed separator to remove the light seed, and keep the seed in tight Mason or other glass jars.

Save apart it not all of the seed in this manner, and try it in comparison with seed saved in the ordinary manner.

THE TAG BILL

THERE has been a widespread interest among the Connecticut tobacco growers, in the bill introduced in the state legislature, relating to the marking or tagging of the crops grown in that state. The object of the bill, as generally understood seems to be to make it impossible to import tobacco from other states into Connecticut and sell it as Connecticut grown tobacco. The bill has met a widespread opposition, and there seems little liklihood that it will be passed in its present form at least, by the legislature.

There are probably good arguments on both sides of this question from the farmer's standpoint. It is a well known fact that certain sections are adapted for the production of particularly valuable type of tobacco, and thus achieve a reputation in the trade, and amongst consumers which is invaluable to the growers, buyers and manufacturers alike. In all countries this reputation is jealously guarded, as it is an invaluable asset to the industry of the favored sections.

It is further a well known fact, that there are no definite standards, or experts who can distinguish all grades of tobacco certainly, and that there are many chances for substitution and imposition by the trade. As a matter of fact the judging of tobacco is a comparative matter, in which no two men fully agree as a rule. It is a general saying that the older and more experienced men become in the matter of handling tobacco, the less they know about it.

The general sentiment of the Connecticut growers seems to be against the passage of this bill. Some of them claim that it would not accomplish the end for which has been drawn, and that it indicates a selfish standpoint which they are unwilling to have attributed to them. Several committees of agricultural clubs and other organizations have visited the legislature and protested agsinst the passage of the bill on the above and other grounds. They claim that tobacco sells on its merits, no matter where produced, and that the tag tax would be unnecessary and unjustifiable under the circumstances.

Whatever the outcome of the pending measure in Connecticut, the interest which it has aroused amongst the growers, in the matter of the final handling of their crops will be beneficial as a whole. It has emphasized the necessity of a good reputation more particularly in the tobacco business, and that deception of any form cannot be practiced for any great length of time without a protest and measures taken for its correction. The growers as a rule are more or less at the mercy of the buyers, and in the tobacco business there seems to be no definite standards whereby the individual farmer is protected. On the other hand the tobacco growers can more easily band together to protect their interests than the growers of most other farm crops. In the discussion of the "tag" bill the growers should study both sides of this question thoroughly, and then take such measures, or modify existing measures for the best interests of the business as a whole.

The fact of the matter is that the remedy for the present unsatisfactory condition of the marketing of the crop, lies in the farmer's hands. If the farmers in the different communities will form agricultural clubs, something after the plan of the West Suffield Progressive Farmers' Club, and come together and agree as to the best method of putting their crops on the market they can save the money that goes to the middlemen and secure more satisfactory prices for their crops. Such clubs are powerful organizations when they unite upon a general policy, and they can influence legislation and conditions in agricultural states, so that the farmers get a fair deal in all interests that affects them.

Such clubs would be naturally beneficial to all parties concerned. In the case of the selling of tobacco crops, they could assist certain members, who otherwise would be forced to sell their crops immediately after harvest, to the detriment of all of the crops in the neighborhood. In many cases buyers go into neighborhoods and selecting some man who has to sell, buys his entire crop at a very low figure. The buyer then goes about and buys crops on this basis. If some of the growers object, the buyer says, "Well I bought your neighbor's crop at such a figure, and your crop isn't any better or as good as his crop." The result is a general lowering of the price of the crops in that whole section. If clubs are organized on the proper basis they could, in great measure, remedy this serious evil in their neighborhoods.

It is a well known fact that the tobacco growers make just a fair living from year to year. It is just as well-known that the tobacco buyers and dealers get rich, and in many cases make enormous fortunes out of handling the crop. Part of his profit belongs to the growers, and it lies in their power to get their share, if they will take proper measures in every tobacco growing community.

Broad Brook

The prolonged drouth of the spring made trouble for every one farmer or otherwise. The tobacco growers make up the largest part of the farmers in and about Broad Brook and they were the ones who profited most by the change of weather. The rain came none too soon for their purposes either —for a number of the planters suffered severely as it was. Several of them were compelled to plow under their young plants and set again, and all welcomed the rains, since they brought them, for a time at least, a relief from the tedious work of watering the plants.

Springfield

Dwight Loomis & Co. have bought the Marvin and Ethan Chapin estates, the large property just to the rear of the Massasoit House, on which stand the old Massasoit stables and the venerable Nayasset hotel. The new owners will start at once to build a large tobacco warehouse four or five stories high on the end of the property nearest Main street. The land is 200 feet on Railroad row and about 170 feet deep. The new building, therefore, can be erected in the eastern end of the lot, without disturbing anything but the offices of the old stable, and it is probable that the stables will be kept where they are for the present.

Enfield

Leon Henry caught three young weasels in one of W. K. Henry's tobacco sheds. Ira Brazee called George Kingsbury's attention to a hole in the ground on the latter's property, and presently two weasels were drawn out.

Inoculation of Leguminous Crops

By T. R. Robinson, United States Department of Agriculture

SOIL inoculation has become, within the past few years, a matter of such common experience that it is, perhaps, unnecessary to go into a lengthy discussion of what it means and for what purpose designed. Primarily, it is an operation undertaken to get a "start" with some leguminous crop which experience has shown needs to be supplied with certain bacteria. Plants of this family (which, in general bear their seeds in a pod or legume) when grown in contact with the proper soil bacteria, form upon their roots small swellings or nodules, variously known as "nitrogen-knots" or "nitrogen traps," which the farmer now recognizes as the reason why his clover, vetch or field peas when ploughed under add, in no small degree, to the crop-producing ability of the soil.

It has been a matter of common experience, when sowing legumes on new land, that the first two or three seedings fail to make a stand. A catch may be secured but the plants do not thrive. After losing two or three seasons, the crop may become established and thereafter there is little difficulty unless too long a time elapses between successive sowings of the same legume. The establishment of the crop after repeated failures is explainable in two ways, both of which are probably concerned: (1) the bacteria adapted to form root nodules are introduced with the seed and chaff, gradually spreading over the field, or (2) organisms already in the soil but previously associated with some native legume acquire, after a few years, the ability to infect the sown crop. If figures could be gathered representing the annual loss of seed and labor from such attempts to establish alfalfa, vetch, etc., on new land the aggregate would doubtless convince the most skeptical of the economy and, in many cases, the absolute necessity of attempting some form of artificial inoculation. Especially is this true with alfalfa, the crop so earnestly desired by every wide-awake farmer who has stock to feed or a market for hay. Repeated trials with every attention given to the best cultural methods have demonstrated the fact that success cannot be assured where the bacteria are lacking. Of scarcely less importance is the inoculation of hairy vetch, the promising winter cover-crop for our northern states. In soils which have borne peas and other legumes previously this crop may form nodules without intentional inoculation, but the safest practice is to make sure of the plants (and soil) getting the benefit of nitrogen derived from the air by supplying the bacteria in sowing.

The method which most readily suggests itself is the transfer of soil from an old field. Soil for this purpose has, within recent years, been offered for sale and shipped long distances, and herein lies the chief objection to the soil method. The use of soil of unknown origin is liable to carry into new localities plant diseases, weed seeds and insect pests, the damage from which would be greater than any possible benefits from the soil inoculation.

To overcome such difficulties as these the attempt was made to cultivate the bacteria in pure cultures and thus introduce them in the soil. The reader is doubtless familiar with the failure of early attempts along this line. The German product "Nitragin" proved unsuccessful in practice owing, as was afterwards demonstrated, to faulty methods of cultivation and distribution. The methods devised in the Laboratory of Plant Physiology of the Department of Agriculture were based on the laws of plant-breeding and selection and have resulted in a marked success for the pure-culture method. The cardinal points were, (1) the use of a liquid medium containing no nitrogen which forced the bacteria to exercise, under artificial conditions, their natural power of using atmospheric nitrogen, and (2) the drying of the bacteria on absorbent cotton as a preliminary to distribution. The "culture" is then in shape for the farmer to use. The dried cotton is usually wrapped in tinfoil and, after opening, is placed in a solution formed by adding the contents of another package to a definite quantity of clean water (as one gallon). This solution contains one per cent. sugar, one tenth per cent. potassium phosphate and one one-hundredths per cent. of magnesium sulphate. These salts, with the sugar as a source of energy, favor the growth of the nitrogen-fixing bacteria held dormant in the cotton but do not offer a good medium for the growth of yeasts and molds carried about in the air and which are bound to contaminate the culture in a greater or less degree. This contamination should be reduced as much as possible by previously boiling the water and allowing it to cool, at least until luke warm, scalding out the bucket or tub used, and keeping the liquid covered at all times. The temperature maintained should be that of an ordinary living room; about 70 degrees Fahrenheit. After twenty-four hours growth in this solution, another package is added, containing ammonium phosphate in amount equal to one-half per cent. of the total solution. This causes a rapid division or growth of the bacteria so that during the next twenty-four hours, with all conditions favorable, the liquid will become so filled with the organisms that it will appear slightly milky or cloudy. It is then ready to apply to seed or to be mixed with soil, either method being effective for carrying the bacteria into the soil. One gallon will moisten at least two bushels of seed which should then be spread out to dry, but not so as to receive the direct sunlight; if mixed with soil (not manure or fertilizer) for top dressing, one gallon will impregnate sufficient soil to spread over four acres (or less). By hand-sowing, a wagon load will be sufficient for this area.

The successful issue of last season's experiments brought about a demand for the cultures which the Department of Agriculture could not have anticipated, nor is it probable that the laboratories could have met the demand in any case. Early in February as many applicants had been listed as could be accommodated up to July 1st, and since that time it has been impossible to furnish cultures except in cases where, for special reasons, a test appeared necessary. This fall and next spring, however, the distribution will be continued as far as facilities permit, but the lists will not be made up more than two months previous to seeding time.

Naturally, there have been a great many inquiries in regard to the quality of the cultures obtainable from commercial sources. It can only be said that the bacteriologists for such concerns have been given all the information necessary and that there is no reason in the nature of the process why they should not ultimately produce as effective cultures as those sent out by the department. The patent which the department holds on the method of growing and distributing the bacteria prevents anyone from obtaining a monopoly and it is likely that by another season there will be a considerable addition to the list of firms offering these cultures for sale. By competition, therefore, the cost to the farmer or gardener will undoubtedly be much lessened and the wisdom of the department's course in patenting the method is already demonstrated. Thus the benefits of the discovery will be brought within the reach of all whose soil conditions call for artificial inoculation.

Before investing extensively, however, in any new method for increasing crop yields, whether bacterial or of a different nature, each man should determine by small experiments its value for his peculiar needs, and not be unduly influenced by results obtained perhaps under widely differing conditions.

Note.—Full information on the use of cultures for inoculating legumes is furnished free by the Department of Agriculture at Washington, D. C. Apply for Farmers' Bulletin No. 214.

Tobacco Hybrids

By A. D. Shamel, Bureau of Plant Industry, U. S. Department of Agriculture

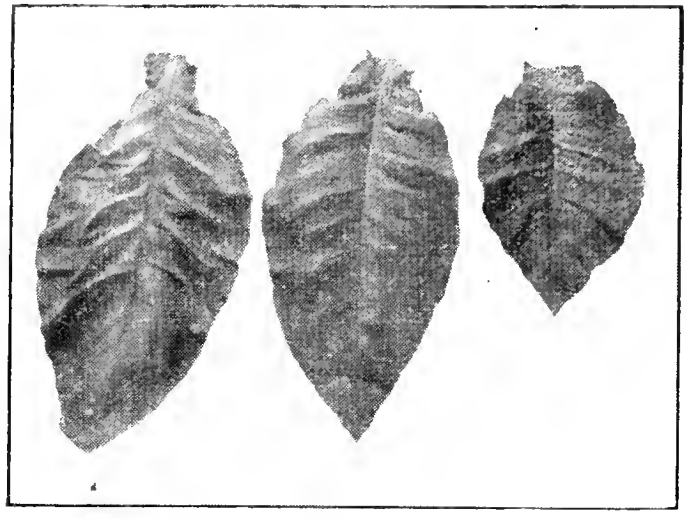
ONE of the most important means by which the New England varieties of tobacco may be improved is hybridization. In most other lines of breeding the great advances are made by judiciously blending strains in such a way as to modify or combine valuable characters of the parents. The results of such crosses may be of greater vitality and are usually more vigorous in growth than the parents. From the results already obtained by the writer in the production of hybrids of the Havana seed and broadleaf varieties crossed with Cuban and Sumatra varieties it can be safely said that valuable new strains of the New England varieties showing important improvements over the Havana seed and broadleaf types, have been obtained. It may be further said that these experiments have thoroughly demonstrated that still further improvements are possible and should receive the attention of every grower of this crop.

One of the best illustrations of the value of such work is the hybrid tobacco produced by Dr. L. Trabut in Algeria. Dr. Trabut crossed the native Algerian tobacco, which is almost wholly worthless, with Cuban and Sumatra tobaccos. The hybrid which he secured combines the hardiness, adaptability to Algerian climatic and soil conditions, and other valuable qualities of the native Algerian variety, with the fineness of veins, flavor and aroma, shape of leaves, and other qualities of the standard Cuban and Sumatra varieties. This hybrid has come into general use in Algeria, is now generally grown in that country, and has made a valuable addition to the agricultural crops and products of Algeria.

Other cases emphasing the importance of this line of tobacco breeding might be cited, such as the Wilson hybrid, and many others, but there is not space in this article to enumerate them. It is probable that most of the best strains of the varieties grown in this country are accidental hybrids, inasmuch as crossing is easily effected through the agency of bees, or other insects, carrying the pollen on their bodies from one field to another, and from one variety to other varieties. Some of the seed crossed in this manner used by the grower, results in a type of plant which he admires, selects for seed the following season, and in this way propagates a hybrid variety.

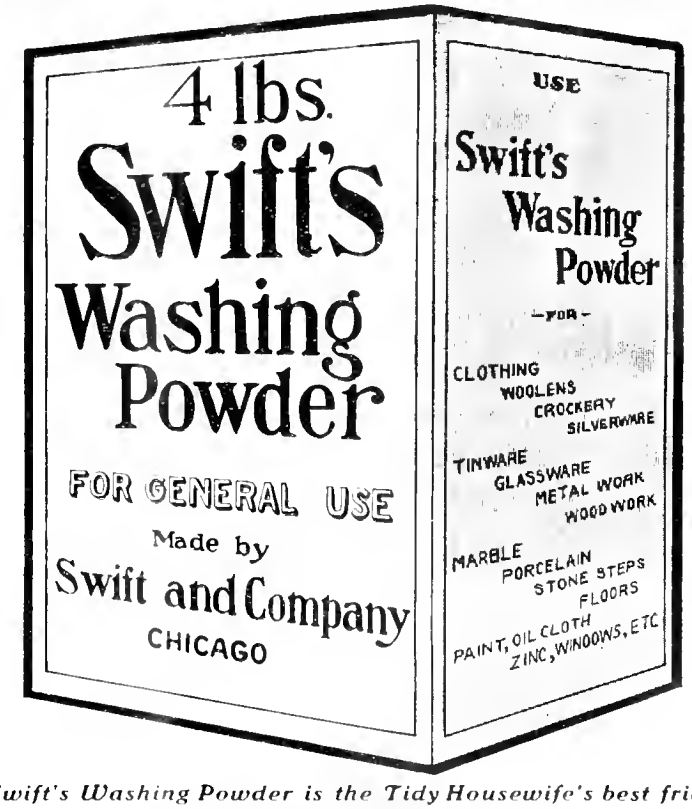
The experiments in the Connecticut Valley in the improvement of the native varieties by crosses with the standard imported varieties will be briefly reviewed in this paper, in order to present to the growers the information gained thus far and to interest them in the work now being carried on in this line. In 1903 the Cooley Havana seed variety was crossed with Cuban, Sumatra, and broadleaf varieties. In all cases the Havana seed type was used as the mother parent, and the other varieties as male parents. In all cases the crosses were successfully made and good seed obtained. In 1904 this seed was sown in separate sections of the seed bed, and the plants from each cross transplanted in separate rows in the field. From the time of sprouting until the tobacco plants were harvested and the seed saved it

(Concluded on page 16.)



1 2 3

THE BROADLEAF X CUBAN HYBRID.
1. Typical leaf Broadleaf mother parent.
2. Typical leaf Hybrid.
3. Typical leaf Cuban male parent.



Swift's Washing Powder is the Tidy Housewife's best friend.
Try a package and see for yourself.

SWIFT PROVISION COMPANY,

191 John Street, BOSTON, MASS.

SKIM MILK CALF AHEAD.

Ready to Make Economical Gains In the Feed Lot.

With the advent of the hand separator the question is often asked as to the relative merits of skim milk from the creamery and from the hand separator. A test comparing the two was made at the Kansas agricultural station with thirteen calves. At first the calves showed a dislike to the odor of the sterilized skim milk, but they soon became accustomed to it and drank it readily. There was practically no difference in the gain made by the calves between the two classes of milk. The creamery, however, took pains to thoroughly sterilize the milk and was careful not to receive sour milk that would give it a tendency to clabber. The hand separator skim milk was fed immediately after separation. The calves receiving skim milk were less subject to scours.

Results with skim milk show the possibilities in raising calves on it and also the variations in these results. With young calves it requires a very small amount of feed to produce a pound of gain.

Three Forms of Feeding Milk.

Results of three different ways of feeding milk, as to cost, are tabulated as follows:

	Cost per 100 pounds head	Cost per 100 pounds gain
Skim milk lot	$5 27	$2.26
Whole milk lot	19 13	7 06
Lot with dams	12.00	4.41

This experiment shows that the feed cost of raising a good skim milk calf need not exceed $5.27, in contrast to $19.13 for whole milk, and $12 for one raised by the dam. A skim milk calf becomes accustomed to eating grain and roughness early in life, becomes gentle, and when transferred to the feed lot is ready to make economical gains.

In the Feed Lots.

At the close of the foregoing experiment the calves running with the dams were placed in the feed lots in comparison with those raised on skim milk and whole milk. The results in the feed lots are shown in the following:

	Number of calves.	Months fed.	Average gain per head	Daily gain per head
Skim milk..	10	7	440	2.10
Whole milk.	10	7	405	1.93
Running with dams	22	7	422	2.00

It will be seen that the skim milk calves made the best gains. The feed record shows that the skim milk calves produced 100 pounds of gain for 430 pounds of grain, while the whole milk calves required 470 pounds of grain per 100 pounds of gain, and the calves running with the dams required 475 pounds of grain per 100 pounds of gain.

The Margin of Resistance.

A careful reading of the bulletins on kerosene-limoid mixtures issued by the Delaware experiment station does not greatly encourage the idea that scale can be destroyed by a single application even of the 20 per cent dilution, but rather that repeated sprayings of mixtures containing a lower percentage of oil may be needed during the summer months. Mixtures containing not over 10 per cent of kerosene may be sprayed when the foliage has hardened in midsummer without much injury and is very effective in killing the larvae and young scales, but cannot be relied on to clear off the adults. Whether trees will endure repeated applications in one season of oily or caustic insecticides is not fully demonstrated. The margin of resistance to insecticides between the pernicious scale and tree tissues is narrow, and the latter's power of growth in some localities does not seem equal to the damage caused by frequent spraying.—Rural New Yorker.

Household Wrinkles.

During an electric storm if the vessel containing milk is placed in another vessel containing water it will be more likely to keep sweet. Of course the milk must be entirely surrounded by water.

A hot foot bath containing a tablespoonful each of borax, spirits of ammonia and alcohol and a teaspoonful each of witch hazel and camphor will give relief to swollen feet in hot weather.

The combination of rhubarb and prunes makes a delicious pie. The prunes are just what the rhubarb needs to cover its acidity.

A SUITABLE LOCATION

For Tobacco Growers

FOR any business man, professional man, or industry, is easily obtained by consulting the Industrial Department. ¶The proposition submitted will be attractive, embodying just the information desired to intelligently consider such an important matter as change of location. ¶Our monthly magazine of Southern opportunities will prove invaluable to those interested in the South.

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IS the most beautiful section of America, heretofore without rail facilities. The climate is delightful, the atmosphere salt-laden and perfumed by thousands of blossoming orange, lemon, grape fruit and guava trees and the most beautiful and fragrant of flowers. ¶A land of perfect health, ideal living, where crime, trouble and ill health are as yet unknown. Manatee booklets describe it in detail.

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J. W. WHITE *General Industrial Agent*
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Southwick, Mass.,—Foreman, H. L. Miller.
East Canaan, Conn.,—Foreman, L. F. Bronson.
Barkhamsted, Conn., Foreman, L. A. Lee.
North Hatfield, Mass.,—Foreman, Willis Holden.
New Hartford, Conn.,—Foreman, James Stewart.

SUMATRA PLANTATIONS:

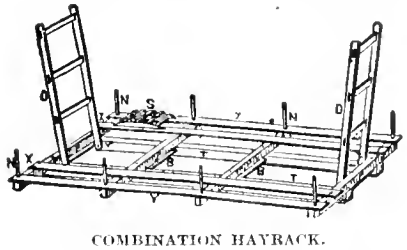
Pine Meadow, Conn.,	25 Acres
Barkhamsted, Conn.,	20 Acres
Southwick, Mass.,	15 Acres

Always in the market for old Tobacco if well assorted and packed. ✠ Havana Seed Wrappers a specialty, assorted and sized into thirty-two grades.

A HANDY HAYRACK.

A Strong Combination Rack, Useful For Various Purposes.

The combination hayrack shown in the first illustration is a convenient one. T T are bed pieces of pine or other straight grained light wood fourteen or sixteen feet in length, eight inches wide and three inches thick; if of oak or other hard wood, two and one-half inches thick will give sufficient strength. Four crosspieces, B, of hard wood one and one-quarter inches thick and six inches wide, are mortised and firmly secured to the bed pieces.

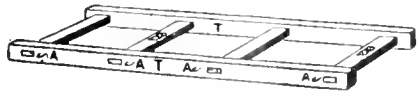


COMBINATION HAYRACK.

This constitutes the frame or foundation and is shown in the second cut. It is frequently used separately to haul rails, boards, stones, manure, etc., and is a convenient, strong and handy arrangement for the purpose. In the first cut is shown the rigging complete, of which its four crosspieces or arms, P, are seven and one-half feet in length, five inches wide and two and one-half inches thick.

If designed for a "sectional rigging" and to prevent side movement a half inch groove is cut into the lower sides of the cross arms, P, so that they fit closely upon the bed pieces. To prevent a forward or backward movement eight strong iron hooks are attached by staples to the sides of the cross arms and when placed upon the bed pieces are readily hooked into the staples, A. Thus arranged one man can easily place the rigging upon or take it from the wagon; or, if desired, bolts may be used to fasten all together by passing them through the cross arms and bed pieces. There is not 25 cents difference in the expense.

Standards, D, can be either stationary or hinged so as to be quickly lowered, raised or removed by a small bolt, as shown at Y. The standards should be six and one-half feet high and quite strong to withstand the pressure of the load as well as to serve as a ladder. The boards, X, should be

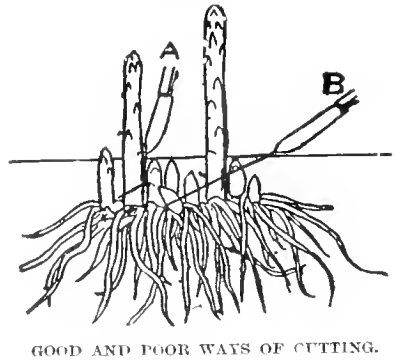


FRAME OF BED PIECES.

of the same length as the bed pieces and one inch thick and six inches wide, of straight grained light wood. Wooden pins or stakes, N, are inserted as shown and should be only slightly sharpened. Should the hind wheels project above the boards, X, bridge over them, as shown at S. Wash with petroleum and keep under shelter when not in use. Country Gentleman.

How to Cut Asparagus.

It is not advisable to cut the asparagus bed till the plants have been three



GOOD AND POOR WAYS OF CUTTING.

years set, and the cutting should always cease in June or by the 1st of July.

In cutting asparagus the knife should be inserted vertically (Fig. A), so that the crowns will not be cut or injured. In the position B the knife may do much mischief.—Bailey.

THE CODLING MOTH.

Facts About the Different Broods. How Spraying Works.

By R. H. PETTIT, Michigan.

Spraying is an old remedy, but one that is very effectual and by far the best means at hand. A spray of paris green put on while the apple stands upright and before it turns down after the blossoms fall and the stamens wither will deposit a small amount of poison inside the calyx cup, which poisons after a short time, dries and remains indefinitely. Now, as the majority of the first brood and sometimes the second brood as well enter at the calyx the poison could not be better placed. Early in the season fruit tunneled by the codling moth falls to the ground, thus thinning the fruit and saving the tree from the drain of supporting damaged fruit.

The Second Brood.

Later, in the case of the second brood, the situation is different. The larvae get into the fruit, much of which rots, while some appears to be healthy until after it is packed and stored away, where the larvae finish their development slowly and spin cocoons in the barrels or bins. The first brood does less damage than the second, but the size of the second brood depends largely on the proportion of the first brood that lives through. A spray applied just about the time that the young hatch out, during the first week of August, should and does reduce the second brood very materially. The reason for this is found in the fact that the majority of the eggs are laid on the leaves, which readily take and retain the poison.

Underspraying.

The fact that the larvae feed for the most part on the under side of the leaves makes the advantage of underspraying apparent. If more than two sprays are to be applied they may be put on one soon after the first application and the other about ten days or two weeks after the first August spray, the period midway between the two being a time of comparative inactivity.

CULTIVATING CORN.

Prompt Use of the Weeder a Big Point In Corn Growing.

The chief purpose of cultivating corn, with most farmers, is to kill weeds. Yet a very important object may be to warm and dry the soil, or, on the contrary, to stop evaporation and save the moisture for the corn. The best time to kill weeds is as soon as they have sprouted and before they come up. At this time the ground will often seem filled with the fine threadlike rootlets, and if they are stirred and brought to the surface they will soon die. This can be most easily done by use of harrow or weeder.

The cornfield should be gone over with weeder three or four days after planting and at about the same interval thereafter. There is a temptation to let it go until the weeds begin to show and the field looks green. This is a mistake, for after the weeds begin to show the weeder will not do nearly so good work. If the use of the weeder is well followed up the weeds may be kept down with it alone at a great saving, for it will cover twice the space and in half the time, saving three-fourths of the time required by the cultivator.

A great mistake is often made at this point in neglecting the corn to plow and plant more ground, when often the actual yield would be greater if the time and work were given to the crop already planted. Neglect of the corn leads to loss in the crop that is not counterbalanced by the gain on the additional area planted.

Sometimes it is necessary to cultivate corn while it is wet for the purpose of drying the soil and, by exposing it to the air, warming it. This can be done in cloudy weather. The ground should not be worked deep and should be ridged as much as possible. Then, if stirred at the right time again, the work will be found a great benefit.—Ohio Farmer

No plant so strenuously demands freedom from weeds as the onion.

May is the month for tomato planting, though the plants may need some protection until the latter part of the month.

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Your Business.

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TARIFFVILLE
Connecticut

The Moon and the Weather.

Those who farm "by the moon" may be interested in a report of observations made for summers during several years at Greenwich on the moon and the barometer or the relation of barometric variations to phases of the moon. The observations show "few days of low barometer about (just after) full and new moon, many such days about (just after) the quarters." The results, therefore, for the summer half of the year seem to confirm the popular belief that the weather tends to be more settled about full moon.

Exclusive Corn Diet.

It has been concluded at the Wisconsin experiment station that it is impracticable to raise young pigs on an exclusive corn ration. "The feeding trial made dwarfed animals out of every pig in lot 1, fed exclusively on corn. While they gained some in flesh, they did not develop in bone, and as time went on their vitality decreased. The hair on their bodies became thin and their skin hard and scaly. Toward the end of the trial they were indifferent about eating and showed considerable uneasiness."

Slugs on Roses, Currants, Etc.

Dr. John B. Smith of New Jersey tells that the most lasting remedy for the slugs which every gardener is familiar with as feeding upon the foliage of currants, roses and even the leaves of pear and cherry trees, is arsenate of lead. This may be safely applied to the foliage of any garden plant that is likely to be infested, and once sprayed the foliage will remain safe for a long time. All the slugs succumb readily to arsenical poisons, and complete exemption from trouble may easily be secured.

Limited Demand For Golden Seal.

The increased use of the golden seal plant in medicine has resulted in wide demand for information concerning it and the possibilities of its cultivation. Bulletin 51 of the department of agriculture says the principal supply at present is from wild plants, but that under artificial shade the golden seal can be cultivated without much difficulty. It is said, however, that the limited demand for the plant will prevent its extensive cultivation, as the price would soon fall to an unremunerative figure.

Steamed Silage.

Steamed silage has been the subject of long continued investigation at the Oregon experiment station, and A. L. Knisely reporting upon it expresses the opinion that "the operation was quite beneficial and the steamed silage was much better than that which was not steamed. Stall fed animals were able to eat without the least injury fifty to seventy five pounds of this steamed silage per day."

Stonewall Jackson's Battles.

Stonewall Jackson's negro body servant knew before anybody else when a battle was imminent. "The general tells you, I suppose," said one of the soldiers. "Lawd, no, sir! De gin'ral nuvver tell me nothin'. I obsarvates de 'tention of de gin'ral dis way: Co'se he prays jest like we all mornin' an' night, but when he gits up two, three times in a night to pray den I rubs my eyes an' gits up, too, an' packs de haversack, ca'se I done fine out dere's gwine to be old boy to pay right away."—From Mrs. Roger A. Pryor's "Reminiscences."

Rich, heavily manured land should be provided for squashes, and these should be planted only when the weather is really settled.

Remove the blossoms from newly set strawberry plants.

A mulch of salt hay or straw between the strawberry rows keeps the soil moist, the berries clean and prevents weeds.

Plant sweet corn, both early and late kinds, and by making enough sowings of each at judicious intervals you may have a feast extending far into the fall.

Plant the veranda boxes now. They will be things of joy.

A most brilliant bedding annual is phlox—such dazzling colors, such masses of bloom, dominating the rest of the plant, besides soft bright shades of pink, rose, lavender, striped and white centered and pure white.

Tobacco Hybrids

(Concluded from page 11.)

was noticed that the hybrids grew more vigorously than the Havana seed mother plants set out alongside of the hybrids in the field. As the plants reached maturity in the field it was found that the hybrids, particularly where Cuban and Sumatra varieties were used as male parents, bore leaves that were very broad and round in shape, thus adapting them better for the purposes of cigar manufacture. The veins were very small and fine from the tip to the base of the leaves. In fact it was apparent even to the most casual observer that a great improvement had been effected in the shape, veins, and general characters of the leaves. The leaves were harvested separately, carried through the curing and fermentation processes separately, and some of each hybrid wrapped on cigars. Every grower and dealer who has seen these cigars has been enthusiastic regarding the improved grain, fineness of venation and general appearance of the hybrid tobaccos. The taste, burn and other qualities are fully as good if not better than the Havana seed tobacco, while the appearance is very greatly improved. Not only has this been true, but the hybrid leaves are uniform in quality from the tip to the base. As is well known, the leaves of the Havana seed are coarse and thin at the base, and the veins are larger than desirable, so that only the tip of the leaves are available for wrappers. In the hybrids the entire leaf may be utilized for wrappers, as the grain, veins, and texture are as fine at the base of the leaves as at the tip.

In other words, these hybrids combine the valuable qualities of burn, taste, yield, and adaptation to the Connecticut Valley conditions with the venation, shape of leaves, grain and other qualities which make the imported tobaccos the standard of the world. These hybrids are improvements on the native varieties, and can be sold as such. In this way they will not change the ordinary methods of growing, curing, caring for the crop, or the marketing of the crop. The hybrids are simply improvements on the Havana seed and broadleaf varieties for the purpose for which these varieties are now grown.

The crosses which have been most successful seem to be Havana seed X Sumatra and Broadleaf X Cuban. However, many dealers and growers like the Havana seed X broadleaf hybrid best of all. Time and experience alone can demonstrate the most valuable hybrids, and it is possible that all will have their place in suiting the fancy of individual growers or in producing special market grades. The manner and method of making hybrids is simple and practicable,—much more so than the breeding of animals or most other plants. It is not possible or desirable to go into the methods of hybridization at this time, first, because it is not desirable that such work be carried on extensively until the growers are fully familiar with the results of such work and hybrid crops, and secondly, from the fact that in order to describe and illustrate these methods fully so that good results can be obtained, it will be necessary to devote an entire paper to the subject.

The work of the United States Department of Agriculture in cooperation with the Connecticut Agricuttural Experiment Station at New Haven, in the introduction of these types, and in the production of new strains with a view to further improvement, is conducted with the sole idea of being of use and help to the tobacco growers. In every case these strains are being and will continue to be fully tested before they are introduced or recommended for use by the growers.

The tobacco plant is self-fertile, and is also easily cross-fertilized. The hybrids of the native New England varieties with the imported varieties show increased vigor of growth over the straight broadleaf or Havana seed varieties. So far there is every indication that they will outyield the old varieties, and that it may be possible to secure earlier strains by seed selection. The work of breeding must be followed by careful selection of seed plants from year to year. By saving the seed of these selected plants under bag, as described in the June number of The Grower, the uniformity of the desired type can be maintained and the quality further improved.

East Hartford

Charles W. Porter, one of the most successful Havana seed growers in the East Hartford section, finished setting out his twelve acres June 8. He began setting the 27th of May. Mr. Porter sows nine 60 foot seed beds which he raises entirely under glass. He says he never has had better success with plants. In preparing his beds for this season he plowed under one eighth of an acre of sod last fall and put heavy coat of stable manure, then in the spring he worked the manure in thoroughly just before sowing the seed. Mr. Porter never removes the glass from the date of sowing till the day of transplanting. During the hot hours of the day he raises his sash inch by inch so as to keep the temperature under the sash even. He believes the keeping on the sash hardens and toughens the plants sufficiently to withstand the extreme hot weather after transplanting. This method is somewhat different from that in general use, as most growers remove their sash and cloth for a week to two weeks before transplanting thus toughening them to the outside conditions. He reports he has not had a plant burned off in the field even in the intense dry weather at the beginning of the season. In the preparation of his land, Mr. Porter uses seven cords of stable manure, 1,000 pounds of cotton seed meal and 700 of castor pomace and land plaster. Last year he got 1,900 pounds of assorted tobacco to the acre.

A large number of planters who set out early have been troubled to a great extent by cut worms and wire worms. There are several fields in town that have been reset entirely where the cut worms have cut the plants off. One grower had two acres entirely destroyed by wire worms which attacked the root and ate up through the stalk. He reset it twice and then became disgusted, plowed it under and stocked it down. Many growers in order to rid themselves of these pests made little paris green sowers which when attached to the rear of the setter distributes a mixture of middlings and paris green on the row. This mixture the cut worms seem to be very fond of and it always proves fatal. But for the wire worms there seems to be no remedy. In construction the paris green sowers resemble a miniature Stevens' fertilizer sower.

Jacob Bantle has increased his acreage of broadleaf by three acres and has built a new shed 60x32 feet.

Mr. Dean, the contractor, has orders for new sheds for the following: F. Schoonhaar, one acre; D. Flad, one acre; J. Kaidaisch, one acre; J. Kaidaisch, Jr., three acres; C. Fripp, two and one-half acres; F. Rouff, three acres; H. Smith, three acres; P. Pinney, three acres. These contracts represent an increase in acreage to the respective growers. Mr. Dean is also building a four-acre shed for himself to replace the one he lost last fall in the wind storm.

Philip Bental of Glastonbury, a large builder, also has a large number of sheds to erect this season. Among the growers for whom he is to build are: F. Comstock, two acre shed; D. Sullivan, four and one-half acres; C. Handel, two acres; P. Hickey, four acres; F. Howe, three acres; F. Tanner, three acres; G. Spear, two acres. Among those who are making additions to their shed room are: J. Forbes, three acres; Tom Daly, two acres; Wm. Steele, three acres; and in Burnside in what is known as Little Italy there are two sheds, one a three-acre and a five-acre.

The growers in Burnside have gone back to stable manure for fertilizer. It is estimated that more than double the quantity of stable manure has been brought into Burnside than ever before; vast quantities were brought by the railroad and a large number of the growers had theirs carted from Hartford. Farmers who have never used manure before are using it this year. There is hardly a grower but who has put on from six to twelve cords to the acre.

Alonzo Roberts has rented his tobacco land to Wm. Dunham and Wm. Phiffer on shares.

C. Handel, Jr., is raising 18 acres for Frank May on Mr. May's farm in the southeastern part of the town.

Wm. Huntting & Co. shipped 125 cases of the 1903 crop to New York last month.

The New England Tobacco Grower

VOL. VII. No. 6. HARTFORD, CONNECTICUT, AUGUST, 1905. $1.00 A YEAR

The Selection of Seed Plants

By E. H. Jenkins, Ph. D., Director of The Connecticut Agricultural Station.

BULLETIN 150 of The Connecticut Agricultural Experiment Station, prepared by A. D. Shamel of the United States Bureau of Plant Industry, is of very special interest to tobacco growers. It points a way to improve both yield and quality of our tobacco crops, it tells of what has been done in two years by following this way on the farms where experimenting has been done, and lastly, it shows how simple a matter it is for every grower in the State to prove the matter for himself.

No two crops of tobacco are quite alike; there is great variation also among different plants in the same field or crop and, when one studies closely, he finds that no two plants, in the same field and crop, even, are quite alike, any more than any two people are alike. They differ in height, in length of stem between leaves, and in number, size and shape of leaves, all points which determine yield and quality of crop. Mr. Shamel also finds a great difference in burning quality of the leaves from different plants growing in the same field, a very important point which needs further observation and study, for it indicates that burning quality may depend in a considerable measure on the individual quality of the plant, i. e., certain seed will yield leaves having a poor "burn," no matter what the soil or fertilizers are.

The cut, Figure 1, shows these variations of form and size in a Connecticut field of Cuban plants, where, to be sure, the variations are likely to be greater than in our well-established Connecticut types; and Figure 2 shows different types of leaves from plants growing in this field.

Every tobacco farmer will readily agree that our crops are not as uniform as is desirable. He sees yearly in his field certain very choice plants and says to himself, "If I had ten acres just like that, wouldn't I be in it!"

Now what is the cause of these variations in the size of tobacco plants, grown in the same field, from the same lot of seed, and of all the other variations in number, shape, size, burn and other features of the leaf? Clearly, in the case of new seed, brought here from abroad, it is in part due to a splitting up of the type, a natural process which always follows a change in climate and soil. We have been taught that Cuban tobacco planted in Connecticut gradually changes from generation to generation till it has the qualities of Connecticut Havana. The tobacco plant, that is, has to change its clothes, in a way, when it moves from one region to another; it has to adapt itself to its new quarters.

But variations in plants of our domestic broadleaf and Connecticut Havana are largely to be explained by the constant cross-fertilization of the flowers, effected by insects. Let us see what cross-fertilization is.

The tobacco flower consists of a bright-colored, tubular, showy part, the

(Continued on page 4.)

FIGURE 1.

Tobacco in Ireland

Resume of Experimenting in Raising Leaf on "the Ould Sod"

U. S. CONSUL MAHIN, of Nottingham, England, in a report to the Department of Commerce and Labor, at Washington, describes an interesting experiment in tobacco growing recently carried on in County Meath, Ireland. He says:

"According to a correspondent of the Nottingham Guardian, promising results have followed an experiment in the cultivation and cure of tobacco in the cultivation and cure of tobacco undertaken by Colonel Everard, of Randlestown, County Meath, on behalf of the Irish Department of Agriculture. The experiment was extended to 20 acres, and a report recently issued puts the total yield at 8,800 pounds, or 440 pounds per statute acre. The tobacco, we are told, has been inspected by serveral leading tobacco manufacturers, and samples have been submitted to experts both in this country and America. In every case a very favorable opinion has been expressed as regards its size, texture, color and burning qualities. The opinion of experts in America to whom it has been submitted is that it is first class.

"The cost of growing the crop is shown to be, approximately, $85 per acre. Taking the average yield to be 440 pounds per acre, the refund of one-third of the duty, which the grower is allowed by the treasury, amounts to $107.06 per acre. The crop has been variously valued at from eight to twelve cents per pound, and assuming the value is 4d. (eight cents) per pound, gives a return of £7 6s. 6d. ($35.65) per acre. Based on these figures the report states that the total net profit per acre amounts to £11 16s. 8d. ($57 58.)

"The correspondent points out that various facts make the actual results better than these figures indicate; that of the twenty acres placed under tobacco only one third was of a type which seems capable of producing a maximum yield, and only two acres of the variety found to give the best results were planted. When this and other points are considered, such as the cultivation and handling of the crop by in experienced workmen, there seems no reason to doubt the conclusion arrived at, that with the experience gained last year a crop of tobacco grown on suitable land should reach 1,000 pounds per acre.

"The report concludes:

" 'This result, after deducting the interest on barns necessary for the curing and the handling of the leaf, and the cost of cultivation, would leave a profit of so much in excess of that obtainable from any other crop, that farmers might be induced to till tobacco more extensively, and the increased employment thereby given would tend to stem the tide of emigration from Ireland. A great advantage also in the cultivation of tobacco is the manner in which it fits into the routine of farm work, the planting being done between the turnip sowings and the cutting of the early meadows, and the cutting and housing between the corn harvest and the raising of the potato crop. The stripping, sorting, and prizing can be carried out at any time during the winter, and thus provide much-needed employment during a time when remunerative labor is difficult to find for farm hands, especially women and boys.' "

Windsor

It has rained at last, and everyone rejoices. The heavy showers brought relief to the farmers, who for nearly a month past have been expecting a most disastrous season; the long-desired soaking rains did finally come, and the crops were saved. During the past two weeks the prospects of the season have grown more and more disheartening. The corn, which ordinarily stands such weather well, showed its effects toward the last, and its leaves turned brown and curled up. Potatoes, too, suffered severely, and such of them as have already been dug are rather mealy. Only on the lower and heavier soils will the yield reach the average.

The tobacco crop does not seem to have suffered so much, although it is generally reckoned to be a much more delicate plant. In the lighter soils it has developed much more rapidly than elsewhere, and the yield will be smaller and lacking in weight, but the plants on the low lands are not much injured. The farmers are now confident that the season will ultimately be a successful one and, since their other crops have been injured in part, are putting in their best efforts to make the most of that crop.

The tobacco which is being grown under cloth has certainly had a fortunate year. The intense heat did not greatly affect it, owing to the cloth protection, and it did not develop too rapidly. Should the wrappers grown in this manner prove satisfactory when cured, the few men who risked the shadegrown will be the ones to make the biggest profits.

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The New England Tobacco Grower

HARTFORD, CONNECTICUT, AUGUST, 1905

Reaches Topping Stage

Tobacco is Fast Nearing Maturity. News From Tobacco Towns.

East Hartford.

The tobacco in this section is nearing its maturity and many of the growers began topping the third week in July. The crop is a close second, if not on a par with the excellent crop of last year, and the farmers are feeling very much satisfied with the outlook in general. The earlier fields show the effect of the cut worm somewhat by their unevenness, but as many of these fields have been topped this defect does not appear. The later fields have a very uniform appearance throughout the town. A part of the crop that was on high ground had begun to show the effect of the continued drought, but the opportune rains of July 19th and 24th wrought wonders for these fields and they now appear to have a most excellent stand. The crop would easily go through the remainder of the growing season without more rain. Those fields that are on low ground this year certainly have the advantage of the others as they have been able to withstand the drought and in most instances show an advance growth over the others which were set out before them. The growers here seem to be more fortunate than those in the northern part of the state as they have had more rain and if it does not rain soon in these northern sections there will be a somewhat stunted growth. In these northern towns there is some complaint of the tobacco topping out low, a rain at this time would bring them through without any material loss to the crop as a whole. It is also noticable in these towns that there is a considerable amount of mosaic tobacco, no doubt caused by the interruption of the plants' growth through lack of a sufficient amount of moisture to carry it through the growing season.

The storm of July 19th, although having the desired effect for the greater part of the broadleaf section, did considerable damage in Glastonbury in streaks. It hailed for several minutes and the tobacco that was half grown suffered severely, being badly riddled. Many of the farmers, though, were very fortunate in that their tobacco was late and therefore quite small. These crops will, no doubt, outgrow the damage to a great extent with perhaps the loss of three or four bottom leaves, which usually are cast aside as worthless sand leaves.

In one part of the town the storm was accompanied by a heavy wind which blew down several trees and a 100 foot shed owned by W. F. Talcott. The shed was blown completely off its foundations and unroofed. Mr. Talcott intends to rebuild immediately.

W. L. Huntting & Co. began sampling their 1904 crop of 3,500 cases July 24th. They have employed 18 men and it will take some three weeks to complete the work. The report is that it is coming through the sweat in excellent condition. The firm shipped 50 cases of the 1903 crop to Chicago last week.

Windsor

A large tobacco warehouse belonging to the Isaac L. Hayden estate at Hayden's station, was struck by lightning and was burned to the ground together with about four tons of hay. This makes five buildings belonging to this estate that have been destroyed by fire within a week. The hay was stored in the warehouse because the hay barn, containing a large quantity of hay, was burned. The fire was a fierce one, as the wind was blowing hard. A downpour of rain was the only thing that saved the dwelling house from destruction. The loss is about $1,500. The buildings were all insured.

Conway

There is very little tobacco here this year. A few pieces are ready to top. It is growing well for the dog weather it has had to grow in.

Hay is quite a good crop here, some having as good a yield as ever.

Agawam

Tobacco is doing well generally. Some pieces are a little uneven on account of the cut-worms. Topping has commenced. No hail as yet and not much rain.

Wethersfield

Most of the tobacco is looking well and growing fast this warm weather.

North Hatfield

Oscar Belden & Sons commenced topping July 4. R. M. Swift commenced to top his tobacco.

C. H. Crafts began topping his tobacco the middle of July. Tobacco in the main is looking well.

Bradstreet.

Tobacco in this vicinity is making a fine show. Quite a number have finished haying and find a crop of fine quality, but about half in quantity.

East Deerfield

Worms worked quite badly early in the season. Tobacco is stocking quite well. The crop will not be any later than usual.

Hatfield

Growers will increase both the tobacco and onions; although the acreage of tobacco will not run very much ahead of last year.

Copper Hill

The tobacco is looking very well, with a prospect of a good yield, barring damage from storm and wind.

The farmers have commenced haying with a prospect of about an average crop.

Broad Brook

Tobacco plants are coming along better than was at first expected, and every one is confident that the season will be a successful one, despite its inauspicious opening.

Suffield

The tobacco crop is coming on finely and the prospects for a successful growth are better than they were earlier in the season. The plants which were set less than two months ago have developed much faster than could have been expected, thanks to the weather of the past week or two, and are now well advanced.

A. N. Graves, formerly of this place, has twenty-five acres of broadleaf growing under cloth at his plantation on the plains about five miles south of here.

South Windsor

Many tobacco growers are now at work topping their crop. In some instances tobacco has advanced far enough to permit suckering. The crops are looking well, but in some cases leaves are turning up, probably due to the continued dry weather.

East Wallop

Enoch Turner has raised his tobacco shed.

Wallop

Alexander Williams is building an addition to his tobacco barn.

Broad Brook

E. H. Sloane is busy sampling one thousand cases of tobacco.

Messrs. R. C. and James Lasbury are building two tobacco sheds, 320 feet long, on what is known as the Terry farm. These are the largest sheds in town at the present time.

The Selection of Seed Plants

(Continued from page 1.)

"corolla," enclosing the reproductive organs. There are usually five "stamens," long slender stems, each bearing on its tip a little pod, the "anther," filled with fine particles, "pollen," which are the male reproductive elements.

There is also in the base of the flower a pod-like receptacle, the "ovary," or future seed-pod, bearing a rod-like body crowned with a knob-like swelling, the "stigma." This is the female or receptive organ. In order to produce seed, ripe pollen from some flower must lodge on this ripe stigma, and when it does, the pod soon begins to set seed. Without this access of pollen to the stigma, i. e., without "fertilization," no seed will be produced.

A flower is "self-fertilized" when the seed is produced by the fertilization of its own stigma with pollen from its anthers; "cross-fertilized" when this fertilization is effected by pollen from the anthers of other flowers. Insects are the chief agency in carrying pollen from one tobacco plant to another, as they constantly visit the flowers to get the nectar which is abundantly secreted deep down inside the flower. While forcing themselves into the flower tube they dust themselves with pollen and also wipe off on the stigma some pollen collected in other flowers, thus cross-fertilizing all the blooms which they visit.

Now this cross-fertilization carries to the resulting seed some of the individual characters of all the plants from which effective pollen came, and all these characters may or may not appear in the next generation. That is, the next generation may be a jumble of all sorts of character, or the pollen of some one plant concerned may have exceptional prepotency or transmitting power and the seed may therefore chiefly have the individual characters of this prepotent plant. On the other hand, self-fertilized flowers, other things being equal, yield seed which produces plants closely resembling the parent plant. This is to be expected, of course, because in self-fertilized flowers the same plant supplies both the male and the female elements, while cross-fertilized seed represents a mixture of characters of two plants at least and perhaps of many more

The tobacco plant is abundantly self-fertile, i. e., if protected from all crossing, it will yield, for two generations at least, as Mr. Shamel has proved, as much, as heavy and as vigorous seed as the cross-fertilized.

His experiments have also shown, to quote from the bulletin:

"Seed produced by exclusive self-fertilization for the two generations covered by our observations has been lighter in color, heavier, freer from mold or fungous disease, and in all

THESE CUTS REPRESENT FIGURES 2, 3 AND 4.

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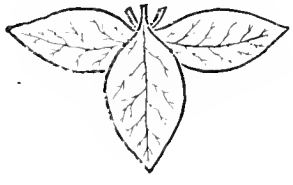

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ways more valuable, as will appear in what follows.

"The plants grown from self-fertilized seed reproduced exactly the character of the mother plant from which they came. If the parent had large leaves, so did all the progeny. If the parent had small leaves, so did all the progeny; and in both cases the average size was the same as the average size of the parent's leaves. This uniformity and exact reproduction of the characters of the mother plant are well shown in the figures. Figure 3 shows two rows of plants from the self-fertilized seed of a single mother plant. The uniformity in size of the plants as well as in the shape, size, veining and number of leaves is very striking. The adjoining rows of tobacco are of a different type. Figure 4, on the same plate, shows a like uniformity in two rows of plants from seed of a single mother plant of the so-called Belgian type.

"Plants from a parent with few suckers had correspondingly few suckers. The shape of the leaves of the offspring was closely like the shape of the parent's leaves.

"The same correspondence appeared in the number of leaves. If the parent had thirty-five leaves, the offspring averaged about thirty-five leaves. If the parent bore ten, the offspring averaged ten.

"In a word, the individual characters, such as shape and color of leaves, numbers of leaves and suckers, body or texture, size of veins, time of maturity, and all other observed characters were transmitted from the parent seed plants to their offspring with marvelous uniformity."

The experiments have also shown that where a fungous disease destroyed most of the plants in one part of the field, but a few plants were not attacked, the self-fertilized seed from these "immune" plants yielded, in turn, plants which were all immune to the trouble. This is a most important fact to be kept in mind if any tobacco disease invades this section of the country.

It appears, then, as the result of Mr. Shamel's work, that seed produced by self-fertilized tobacco plants will yield plants closely like the parent plant in all particulars and therefore much more closely like each other than seed from cross-fertilized plants. The grower may select the particular plants in his field which seem to him the very best in all particulars, protect their flowers from cross-fertilizing, and so secure in his next crop the desirable qualities which he noticed in the single selected plants of the last crop.

How far this improvement may be carried on is yet to be seen. There will be, of course, a natural limit to it, and the work of Mr. Shamel and the Agricultural Station will find where that is. Both of them have shown independently, by two years' experiment, that they have not in that time reached the limit of improvement.

It remains to say a word regarding the method to be followed in selecting and protecting plants, and let me put that in the form of an exhortation to the careful grower.

Go over your field often, watch carefully and find the particular plants which are the very best in size and shape of leaf and number of leaves. Get acquainted with them. They all look about alike at first, but as you watch them they begin to differ in your eyes. Mark in some way these choice plants so that the men won't top them. When the flower head is about to blossom, cut off the side flower stalks and the very top leaf, pick any flower that has already opened, and draw over the flower head a common manila twelve-pound grocery bag—preferably with a roof-shaped, instead of a flat-shaped bottom—and tie the mouth of the bag about the stem so that no insects can get in. Figure 5 shows a properly capped plant. As the plant grows, move the bag up so as to accommodate the extra growth and prevent the seed head from pressing against the bottom of the bag, which might injure or break off the flowers and seed pods. Late in the season, after all or most of the pods have set, open the bags, shake out all of the loose flowers and other debris, and immediately re-tie and allow to remain until the pods have ripened.

"We would advise those who wish

(Continued on page 10)

Condition of Crops

The Government's Report on 1905 Domestic Tobacco

CHIEF STATISTICIAN HYDE, of the Department of Agriculture, at Washington, has compiled for the Tobacco Leaf a table showing the condition of the tobacco crop by States on July 1 of the present year, as compared with the corresponding date in 1904; and indicating also the percentage of increase or decrease in the acreage of this year's crop, as compared with that of last year.

The acreage shown by this report is 93.3 per cent. of that planted last year, a decline of 6.7 per cent., or 69,548 acres on the basis of last year's total of 10,37,735. The general average condition of the crop on July 1 for the entire country was 87.4 per cent., as compared with 85.3 per cent. a year ago, a gain of 2.1 per cent. The Department's statement in detail is as follows:

DOMESTIC TOBACCO CROP OF 1905.

	Acreage July 1, '05 P. c. '04 crop.	Condit'n July 1 1904	1905
New Hampshire...	105	90	100
Vermont.....	110	90	98
Massachusetts.....	101	92	92
Connecticut.....	105	96	100
New York.....	102	91	90
Pennsylvania.....	106	91	98
Maryland.....	94	88	90
Virginia.....	89	86	84
North Carolina....	95	81	81
South Carolina....	108	86	80
Georgia	109	83	90
Florida.....	120	89	95
Alabama.....	89	77	88
Mississippi	91	92	90
Louisiana.....	71	106	93
Texas.....	100	95	93
Arkansas	85	84	96
Tennessee.....	87	87	87
West Virginia.....	98	90	96
Kentucky.....	91	84	89
Ohio	99	92	90
Michigan	..	88	..
Indiana.....	100	81	92
Illinois	98	89	95
Wisconsin.....	96	86	94
Missouri.....	94	78	89
United States.....	93.3	85.3	87.4

The most notable feature of this table is the important gain both in acreage and condition of the crop in the cigar leaf districts, and it is apparent that in point of condition the improvement in cigar leaf is more notable than that in other varieties; and also that the total decrease in acreage is due to curtailment in the planting of other tobacco than cigar leaf, with the possible exception of Wisconsin. In Massachusetts the condition for the two years is exactly the same, but a one per cent. increase in acreage for 1905 is noted. In Connecticut the condition shows a gain of four points, and acreage gain of five points. In New York the decline of one point in condition is offset by an increase in acreage of two points. Pennsylvania's big crop shows a gain of seven points in condition, and of six points in acreage, both highly significant figures. Georgia's crop has improved seven points in condition and nine points in acreage, while Florida makes even a better showing with a six-point improvement in condition and a twenty per cent. increase in acreage. The Wisconsin crop shows a condition eight points better than that of last year, which more than offsets the decline of four per cent. in acreage. Taken as a whole, the cigar leaf outlook could not be better, although less significance attaches to condition on July 1 than on the dates later in the season, when the Department makes its monthly surveys.

As to the leading Burley and dark tobacco districts, there appears to be a curtailment of acreage, which, however, is offset to some extent by improvement in condition. Kentucky's big crop is reported as five points better than a year ago, although the acreage has declined nine per cent. In Maryland, condition is two points better than a year ago, but acreage has decreased six per cent. In Virginia, condition has fallen off two points, while acreage has declined eleven points. North Carolina has held its own as to condition, but has made a loss of five points on acreage. South Carolina has lost six points on condition, but shows a gain of eight points on acreage. Ohio is two points behind last year on condition and one point behind on acreage, but these declines are so small that favorable weather may eliminate them before another month is passed.

East Windsor

Peter J. Brown is furnishing the lumber for a tobacco shed for Edgar Farnham in South Windsor.

Granby

Tobacco is looking well in this section. Some farmers will begin cutting August 1.

There is very little complaint of calico in this locality. Fields where cleaned seed was used show much less of it than where the seed was uncleaned.

F. M. Colton has just completed a shed of four acres capacity. R. L. Forsythe has a shed two hundred feet long nearly completed. There are several others in process of erection.

FARMER.

King Street

Several of the farmers have finished haying and some are topping tobacco. The crops are looking very fine after the needed showers.

NEW ENGLAND TOBACCO GROWERS, to insure good yields of fine quality, should use about 3,000 lbs. of fertilizer per acre, containing not less than 10 per cent. actual POTASH, in form of Sulphate.

Tobacco makes greater demand on the soil for POTASH than any other cultivated plant.

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Crop Most Promising

Favorable tobacco weather has continued in the Connecticut Valley, and the crop as it stands today never promised better in the middle of July. Rain, which was needed a week ago, is more urgently required now. The hot sun of mid-July would have damaged hundreds, perhaps thousands, of acres irreparably had it not been for local showers, which distributed themselves over a wide area.

The plants range from five or six inches to eighteen or twenty inches in height, tobacco in the average field being twelve or fourteen inches above the ground. Plants are beginning to bud and even to blossom. Hoeing and weeding is general. Most growers are working with a small complement of help, which will not be increased until the crop is ready to cut.

The trend of opinion is that late-set tobacco will be best this season. Much of the tobacco which was set from May 10 to May 25 is stunted because of unseasonable weather. The finest fields are of tobacco, set the first week in June.

Increase in New Milford

In the Housatonic Valley there is a full acreage this season with a substantial increase in the New Milford district. Around that centre many sheds are being erected, this fact attesting the enlargement in the industry. Cut-worms have proved as bothersome along the Housatonic Valley as along the Connecticut Valley. Some growers south of New Milford have gone so far as to plow up a portion of their land worst infested and put it into corn. Only one or two instances of this kind were noted, however.

Sunderland

The acreage will be a little less than last year, and more of onions.

Soil and Atmosphere

By J. B. Stewart, Bureau of Soils, U. S. Dep't of Agriculture

(Part II Atmosphere.)

As it would take considerable space and add but little to this article, because of the purpose for which it is written, to give the atmospheric tables in full, we will give a summary of them only, and we will call attention to the effect the tent has upon the atmosphere:

SUMMARY OF ATMOSPHERIC RESULTS FOR 1901.

	Inside of tent.		Outside tent		Difference.	
	7 a. m.	2 p. m.	7 a. m.	2 p. m.	7 a. m.	2 p. m.
Average relative humidity,	88.33	76.80	87.70	70.00	.63	6.80
Average temperature of air,	66.50	80.44	67.75	80.40	1.15	.04
Mean relative humidity,	82.50		78.85		3.71	
Mean temperature of air,	73.47		74.02		.45	
Mean maximum temperature of air,	85.10		82.70		2.50	
Mean minimum temperature of air,	69.64		60.79		8.85	
Range of temperature of air,	15.56		21.19		6.45	

It is an established fact that plants are continually taking moisture from the soil and giving it off into the atmosphere through their leaves. The amount of moisture held by the air which surrounds the plant, must, therefore, have some effect upon the quantity of moistnre that will be taken from the plant during the period of its growth, and as the turgidity of the plant, which is due to the amount of water that it contains, has some influence on its rate of growth, and the amount of water in the plant is influenced by the relative humidity of the atmosphere might have a great influence on the rate of the growth of the plant. We find in the table however, very little difference in the relative humidity of the atmosphere between the outside and the inside of the tent, only an average difference for each 24 hours of 3.71 per cent. The temperature of the atmosphere surrounding a plant, has a great influence on its rate of growth for if the temperature falls below, or raises above, a certain point, all plant growth stops. Each plant has a degree of temperature in which it will thrive best, and this degree of temperature is called the optimum, such plants reach their optimum temperature when it is the warmest and any artificial device that will tend to increase the temperature of the atmosphere which surrounds the plant, must therefore have some effect upon it's growth.

It will be noticed from the table, that during the day there was very little difference between the temperature of the air, outside and inside of the tent, but at night there was considerable difference, enough, I think, to have some effect on the rate of plant growth. As stated in Strasburger, Mall, Schmek and Schimper's Botany, page 235, "If the temperature does not fall too low, plants grow more rapidly at night than they do by day."

The temperature of the air was also more constant inside of the tent than it was outside as will be seen from the table. We find from the above study that for the season of 1901 the tent had in a slight degree, the following influence upon the soil and atmosphere:

No. 1. The soil was more moist.

No. 2. The soil remained more friable and was less affected by drouth or heavy rain.

No. 3. The soil was made warmer.

No. 4. The air contained more moisture.

No. 5. The air was made warmer, especially at night.

While there is a slight difference in favor of plant growth under the tent in all of the above points mentioned, I do not think that there is enough difference to cause the abnormal growth that the plant makes. I think that there is some other factor that is accountable for this abnormal growth and that, that factor is the absence of a small amount of light, caused by the slight shade produced by the cloth.

Further investigations along this line are being made this year and by the end of the season we hope to be able to furnish some more valuable information on this subject.

Hartford

The New Haven Tobacco Co. have filed an organization in the office of the Secretary of State. John M. Quinn and Elliot Watrous, of New Haven, and S. W. Baldwin, of Naugatuck, are the incorporators. The company's authorized capital stock is $20,000, all common, in $100 shares. The company are to start business with a paid-in capital of $5,000. Their objects are to buy and sell at wholesale and retail cigars, cheroots, little cigars, cigarettes and all other forms of tobacco, together with pipes and all other smokers' articles, and to do any and all things incidental to the business aforesaid or any part of it.

Lancaster, Pennsylvania

According to G. L. Sachs, a well known Lancaster manufacturer, one of the earliest known records of cutting has been made by John R. Knisley, of Manor township. Mr. Sachs writes The Tobacco World that on July 11, Mr. Knisley who is a veteran in the tobacco growing business commenced cutting a well matured two acre crop of Havana seedleaf and that it is in first class shape.

Richmond, Virginia

Planters of the surrounding counties expect a large tobacco crop this years In fact, some of the local dealers have predicted that it will be beyond 18,000,000 pounds.

J. M. Bell, of New London, and his brother, J. W. Bell, of Central Point, have sold some of the finest tobacco raised in that section. They received good prices for all their crop. J. M. Bell received an average of $50 for one lot he brought here, his wrappers selling as high as $66.

WANT ADVERTISEMENTS.

Advertisements under this head cost one cent a word each time; no advertisement taken for less than twenty cents; cash or stamps must accompany orders, which should be received by the 25th of the month.

TOBACCO LAND ON SHARES—I offer Tobacco Land to rent. Sheds for ten acres. Apply at once, in person. Chas. F. Fowler' 140 Union St., Westfield, Mass.

WANTED TO PURCHASE—Second hand tobacco baling press. Box 38, care of New England Tobacco Grower.

WANTED—Distributer for the output of a small cigar factory making a specialty of $25 and $30 goods. Box 34, Care The New England Tobacco Grower.

WANTED—Second-hand green bone cutter D. L. B., Box 19, Rockville, Connecticut.

FOR SALE—Canadian hard wood ashes Try this fertilizer. George Stevens, Peterboro Canada.

JENKINS & BARKER,

Successors to Col. Charles L. Burdett.

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Solicitors of United States and Foreign Patents, Designs and Trade Marks.

FIRST NATIONAL BANK BUILDING,

50 State Street, Hartford, Connecticut

YAGUAS YAGUAS

Porto Rico Yaguas for Tobacco Growers.

Cuba forbids export of Yagua. Porto Rico will supply demand through

S. V. L. LIPPITT,

MAYAGUEZ, PORTO RICO.

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The NEW ENGLAND TOBACCO GROWER

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HARTFORD, AUGUST, 1905.

TOBACCO CULTIVATION

THE recent protracted dry hot weather has emphasized the necessity of frequent cultivation of tobacco fields. In fields which have been cultivated frequently during the dry weather, with small shovel cultivators, it has been found that the soil moisture has been retained and the plants made comparatively a steady growth. On the other hand fields lacking in cultivation, have dried out, the soil has become hard and baked and the plant growth has been much less vigorous. In addition to these facts, the fields that have been frequently cultivated, have suffered less from the dry weather, than the fields which have been cultivated frequently and the tobacco in the cultivated fields has wilted noticeably less.

In view of the expense and trouble in raising a crop of tobacco, it appears that the growers' experience, and experiments which have been carried on with tobacco cultivation, would lead the farmers to adopt the best methods of cultivation. As a matter of fact it has done so to a great extent, but there are many tobacco growers who do not seem to recognize the necessity of careful and frequent cultivation during dry weather.

The frequent cutivation of the surface soil tends to produce a mulch, which prevents the escape of the soil moisture. If the surface soil is not stirred, the soil moisture is carried from the subsoil to the surface soil by capillary action, and the supply of moisture in the soil is thus rapidly exhausted. The breaking up of the surface layer of soil, breaks the capillary connection between the atmosphere and the soil, and in this way prevents the escape of the moisture.

Cultivation, therefore, tends to save soil moisture in dry weather. Of course if deep shovel cultivators are used, and the roots of the plants are disturbed or injured, the crop will be reduced in yield and quality by this cultivation. Small shovel cultivators, or any arrangement to stir the surface soil without injury to the plants as long as it is possible to cultivate, gives profitable results in yield and quality of the tobacco.

ACCIDENTS TO THE CROP

EVERY season some section of the New England tobacco growing district is injured by hail storms, or other climatic conditions. In these sections the tobacco growers lose a part or all of their crop, and in many cases it is disastrous to these farmers. In several instances growers have invested their whole capital in the growing of a large crop, and a storm in a short time destroys their capital and they are forced out of business. Such is the case in some sections this season.

This experience only emphasizes the necessity of general farming, and the sooner the tobacco growers recognize this fact, the better off they will become. The old adage, do not put all of your eggs in one basket, holds as true today as ever before, and is illustrated every season by the failure of some of the tobacco growers.

An investigation of the condition of the successful tobacco growers shows that they have raised some tobacco every year, but never more than they could afford to lose if they happened to have an unfavorable season, or accident to their crop.

Most of the successful growers have other interests as dairying, truck farming, fruit growing, poultry raising or other business which will support them in the event of a poor crop of tobacco. On the other hand an investigation of the cause of the failure of many growers, shows that it has been due to poor judgment in the laying out of more money for the growing of the crop than they could afford to lose.

THE CURING SEASON

THE time for harvesting this season's crop is at hand, and doubtless many of the early crop will be in the sheds the fore part of August. There is usually more or less difficulty in the successful curing of a crop and more or less complaint of pole sweat or shed burn. Of course this trouble varies in different seasons, depending on the growth of the crop, and the nature of the curing season.

The pole sweat or shed burn occurs during hot, "muggy" weather when there is little circulation of air, and the atmosphere is laden with moisture. It may attack the crop in the shed during the night and in a few hours the entire crop will be destroyed, or its value seriously impaired.

There are several methods of preventing this injury which are more or less successful and practical. The most practical one seems to be the burning of small charcoal fires in different sections of the shed during the dangerous periods of weather, which will create currents of air which will dry out the tobacco sufficiently to prevent the pole sweat. In other cases wood has been used, but owing to the smoke it is not as successful as the charcoal method. Not only is this true, but the flames of the wood fires is liable to scorch the tobacco leaves nearest the fires.

Several forms of tobacco curers are being used with varying degrees of success. One of the objections to them is their cost, but otherwise they have given more or less satisfaction. The principle is the same as in the case of the wood fires, that is, the introduction into the shed of a current of dry warm air which on rising to the top of the shed, sets up a circulation of the stagnant air in the sheds.

In the event of a damp curing season it will pay the growers to provide themselves with a supply of charcoal to use for burning in the shed at the proper time. The time when the fires are needed do not usually last more than 48 hours, so that a few bushels of charcoal will be sufficient to carry the crop through the ordinary sweating season.

GROWERS' ASSOCIATIONS

IN Tennessee and Southern Kentucky an organization of the tobacco growers has been effected to protect the growers and to arrange to hold the tobacco crops until living prices can be obtained. The tobacco manufacturers are united in many instances in powerful organizations, and such organizations has resulted in wonderful profits to the individuals in these organizations.

The tobacco growers necessarily face a big problem in trying to unite in a

business way in the matter of crop production and selling. The differences in soil and climate affecting the quality of crops raised on different farms and in different sections, the small capital of the individual growers and the necessity for ready money for the crop to pay the expenses of cultivation and harvesting of the crop, and many other factors combine to make this question so very difficult of solution.

In New England one or two attempts are being made to bring the growers in different communities together in such a way that their interests may be protected, and the profits of some of the middlemen eliminated by direct sale to the manufacturer. These organizations will be watched with great interest by the growers interested in this phase of their business, and it is to be hoped that these organizations will meet with success. It seems that every other profession or business can be organized more effectively than the farmers. They are naturally isolated and do not get together frequently to talk over their mutual business relations. In many cases where such organizations have been attempted, it has been done by men who have had some personal axe to grind and have made a failure of the organization to the farmer's loss.

This subject would be one which the farmers could profitably discuss at the tobacco growers' meetings, and an investigation of the methods pursued by the organizations now at work on this problem would be beneficial to every one concerned.

The Bureau of Plant Industry of the United States Department of Agriculture in co-operation with the Connecticut Agricultural Experiment Station at New Haven are planning to help the tobacco growers select some of their tobacco seed plants, saving the seed under bag, according to the plan outlined at the spring institute meetings and through their bulletins. If the growers who are interested in this matter will address Dr. E. H. Jenkins, New Haven, Connecticut, Director of the Connecticut Experiment Station, or A. D. Shamel, of the Bureau of Plant Industry, Tariffville, Connecticut, they will write to the farmers interested in this matter.

The Connecticut Agricultural Experiment Station at New Haven has recently issued three bulletins, The Preparation of Tobacco Seed, The Selection of Tobacco Seed Plants, and a New and Valuable Cover Crop for Tobacco Fields, which can be secured free of charge by Connecticut farmers, and others as far as the supply will permit. The tobacco growers should write to this experiment station and request copies of these bulletins.

Cigar Leaf Market

New York, July 19.

In domestic leaf there is not much change. The stock of old binders is limited, and the quantity of old fillers is also small. With the approach of the coming month, when the influx of Western buyers will take place, their influence will doubtless be for the stimulation of trade, and a good healthy business in the new crop is looked for.

SUMATRA—There will be but three more inscriptions this year. The fall inscriptions will take place on September 22 and October 6 and 13. Therefore the fate of the Sumatra crop has already been settled, and the manufacturers, who have been waiting, will doubtless buy more freely now. In fact, a realization of the situation seems to have permeated the trade, with the result that transactions in Sumatra have been numerous during the past week. Light tobacco of this type is scarce, and it is advisable that those needing goods should get them now, rather than later, when the cream of the crop will have been taken.

HAVANA—While the market for the past week has not been bare of transactions, those taking place have nevertheless not been very numerous, nor have any large quantities figured in them. On the strength of advices from Cuba anent the new crop, which is the objective point of the trade just now, prices keep up.

Savannah, N. Y.

Tobacco raising in this section is in a bad way, owing to farmers planting too large an acreage and not taking good care of same. If they would plant less and take better care of same, they would not only get better quality tobacco, but they would be in a condition to ask and get a far better price.

There is no one to blame but the grower, for buyers will pay well for good tobacco, and it is always in demand. When the farmers get educated to it, they will see a profit in growing good tobacco. The writer has grown fifteen crops, and has always received a good profit on his labor. A few good suggestions to tobacco raisers are, be careful in handling so as not to break or tear the leaves, get planted as soon in the spring as possible, and be sure not to cut the crop until it is ripe. Take down as soon as it is in condition, and get it in the bundle for early market. M.

Plymouth

Abe Strauss, former agent of the Continental Tobacco company, was found guilty by the Plymouth county grand jury of violating the Massachusetts traders' law. The case has attracted widespread interest.

The complainants were the Independent Tobacco Manufacturers' association, and the fight has been against the tobacco trust. The Massachusetts statute, designed to prevent monopoly, provides that no person selling goods shall make a condition that the purchaser shall not buy goods of other persons unless the purchaser is an agent or is making a contract as an agent for the exclusive sale of a product.

Strauss was indicted by the grand jury of Plymouth county about a year ago for violation of his act. Both sides fought hard to win a verdict. Strauss was found guilty, but he carried the case to the supreme court and obtained a new trial. The supreme court decided that the charge of Judge Lawton to the jury had not been favorable enough to the prisoner.

Strauss was not present in court, but he was represented by F. M. Bixby, of Brockton. District Attorney Asa P. French conducted the prosecution and Paul R. Blackmur appeared for the Independent Manufacturers' association.

Label Bill Killed

The bill concerning the labeling of tobacco introduced in the Connecticut Legislature by Mr. Connor of Enfield, which was reported unfavorably upon by the committee, was the subject of considerable discussion on June 29, in the course of which Mr. Connor declared that every farmer in Enfield had indorsed the bill, and that only those in the warehouses of Suffield opposed the measure. The bill was finally killed.

Ninth Inscription Notes

Amsterdam, July 5.

The ninth Amsterdam inscription took place on Friday, June 30, when 14,880 bales of Sumatra and 1,113 bales of Borneo were offered for sale. In general, it may be said that the parcels offered for sale were of an inferior quality, with the exception of a few which might be classed among the medium ones. Notwithstanding these conditions, Americans found lots in the greater part of the parcels, and they bought 600 bales at prices ranging from 115 cents to 300 cents for first and second lengths together.

Failure in Norfolk

The Hamburger Tobacco Company of Norfolk, Virginia, have failed, with $5,000 liabilities and $1,200 assets. The principal creditors are Morris D. Neumann & Co., Philadelphia, $625; Wertheimer Bros., Baltimore, $147; and Deutsch Bros., New York, $307. Attorney James G. Martin has been appointed receiver of the bankrupt stock.

Selection of Seed Corn

By A. D. Shamel, Bureau of Plant Industry, U. S. Department of Agriculture

(Continued from July Grower.)

THE season for the selection of seed corn for next year's crop is near at hand. There is great room for improvement of the New England varieties of corn by seed selection and breeding, so that every farmer who grows corn is interested in making all possible progress in this direction. In view of the fact that it costs no more to grow a valuable variety or type of corn, than a poor one, the advantage of careful seed selection can be readily understood.

In the portion of the field where the seed ears are to be selected, all of the poor stalks and barren stalks should be detasseled or removed before the pollen falls from the tassel. In plant breeding as in animal breeding, the character of the male parent is strongly impressed on the progeny. So if the seed ear of corn selected by the farmer for next season's planting, has been fertilized by the pollen from a barren or poor stalk, it is likely that the next crop raised from this seed will contain a large proportion of poor and barren stalks. The proportion of barren stalks in several varieties of western dent corn, was greatly reduced by the writer, by following some such system for several years. In the case of the Boone County, white variety, one of the most extensively grown and valuable varieties of white dent corn, originated by Mr. James Riley of Thorntown, Indiana, the per cent. of barren stalks was reduced from about 20 per cent. to less than five per cent. in five years of detasseling of the barren stalks.

At this particular time it would be interesting to go into the corn field, select an average row, count all of the stalks, and then count the number of stalks which do not bear ears. In this way an idea can be gained of the actual per cent. of barren stalks in New England corn fields and in the case of the flint varieties. So far as is known to the writer there has been no general determination of the per cent. of barren stalks in New England varieties. In Illinois the writer found that the per cent. of stalks in the fields producing no ears, run from 19 to 23 per cent. The counts of the number of barren stalks was made by school children, who went into the fields, counted the number of barren stalks in 100 hills in several places in the field. These figures were compiled and the average of the results from the thousands of observations led to a more careful study of the condition of the corn crop by the farmers. In all sections in the great corn belt farmers are taking great pains to improve the corn crop by eradicating the poor and barren stalks, through systematic and careful seed selection.

All great progress made so far in increasing the yield and quality of the corn crop, has been made with pure varieties. After these varieties have been secured, certain crosses have been made between strains of the varieties, and in some cases beneficial results have been reported. However, the fact remains beyond dispute, that the valuable varieties now in general use in the corn belt, have been developed by selecting pure blood, that is, keeping the varieties free from crossing with other varieties. Corn is naturally cross fertilized. The silk, corresponding to the female portion of the stalk, does not become ready for fertilization by pollen, corresponding to the male portion of the plant, of the same stalk at the time the pollen falls from the tassel of this stalk. The silks are ready for fertilization either before or after the pollen on that stalk falls from the tassel. Consequently the silks are pollinated with pollen from other stalks, the tassels of which mature pollen at the same time that the silks of the other stalks are ready for fertilization. The pollen grains are very light and are carried by the wind, in unobstructed places for considerable distances. The writer has observed the carrying of pollen by the wind across unobstructed fields during favorable seasons for nearly one-half mile. Under certain circumstances the pollen will probably be carried much farther. In the corn field itself the pollen drifts against the stalks and does not travel very far, probably not farther than twenty rows under ordinary conditions. Mixture in corn between varieties of different color, as white and yellow, can be observed in the color of the kernels on the ear, the same season that the crossing takes place. For instance if the pollen of a yellow variety falls on the silks and fertilizes a white variety, the body of the kernels have a yellowish cast of color. On the other hand if the pollen of a white variety falls on the silks and fertilizes a yellow variety, the tops of the mixed kernels of the yellow ear will have a white appearance, or as it is commonly known, white-cap color. If the mixed kernels are carefully removed they do not impair the purity of the remainder of the kernels, but there is always great danger that some of them will not be seen, and will be planted in the crop the following season. A single mixed kernel planted in the field, produces a plant which bears from fifteen to forty million pollen grains. So it can be readily seen that such mixture is soon carried out into the whole field.

The only safe plan is to select the seed corn where there is no possibility of crossing. If mixed kernels are found they should be carefully removed before planting time. The corn growers will make more permanent progress by careful selection in the field, than by any other means, using pure varieties of corn which are acclimated and give good results in the soil and under the conditions that it is grown.

It has been definitely determined by exact experiment and practical experience, that by selecting ears of corn from a particular type of plant will tend to produce that plant in the following crops. In corn we are at a certain disadvantage because while we can see, measure, weigh or otherwise study the plant from which we select the ear, we have no means of knowing where the pollen came from which fertilized the ear. In the careful breeding work now being carried on in some sections, ears are mated, and planted in short alternate rows in breeding blocks. The ears which produce the best rows are used as the mother parents and detasseled before the tassels open, while the best plants in the rows from the other ears, are used for pollen production. However, this plan is probably not practical in all cases, and will only be followed by the corn breeder. We are then confronted with the problem of securing good ears from good stalks, which have been fertilized by the pollen from as good plants as possible. The only thing that practically can be done by the grower is to remove the tassels from the poor and barren stalks and select the ears from the best plants remaining in the field or the portion of the field selected for saving seed.

The farmer should go into the field before the corn is harvested and select the best stalks bearing the best type of ears for seed. If the corn is then mature the ears can be husked at once and stored for keeping, but if the corn is only ready for cutting, the corn plants selected should be cut and stored in separate shock, and when ready for husking the ears can be husked out and hung up for seed.

After the ears are husked out they should be hung up in a barn where there is a free circulation of air. The whole secret of good seed in the spring, that is seed that will grow vigorously, is in getting the ears thoroughly dried out in the fall before cold weather sets in. Seed that is thoroughly dry and mature is not injured by ordinary cold weather. The poor seed corn, weak in vitality, comes from seed that is immature, or contains too much moisture which during cold weather freezes and destroys the life of the young plants in the corn kernels. The best plan in ordinary practice is to leave two or three long husks attached to the ears, and by these husks tie two or three ears together and hang them up in a barn or shed which can be opened in drying weather and closed in damp

weather. The curing sheds for tobacco would be the best possible place for drying ont seed corn, if there is space for the seed corn after the early tobacco has been removed. In fact the big seed corn storing houses are being built on this principle, and are giving good satisfaction.

WHAT TO DO.

Select a portion of the field for seed gathering and if possible it should be selected where there is the least possible chance of cross fertilization with other varieties.

Cut out or detassel the poor weak or barren stalks in this portion of the field, before the pollen begins to fall from the tassels. This practice is to prevent the pollen of these inferior stalks fertilizing the ears selected for seed.

Select the best stalks or plants for the selection of seed ears. If the corn is to be cut for feeding purposes, cut these selected plants and store where the ears can mature and dry out thoroughly.

Husk out the seed ears and hang up where they will thoroughly cure before cold weather sets in.

Tobacco Growers Meet

The New England Tobacco Growers' Association held its semi-annual meeting in Dickinson's hall, Springfield, July 29, with about two score men in attendance. The morning session opened at 10 o'clock and closed at noon, the time being devoted to business and consideration of changes in the by-laws.

The important changes made in the laws were that in the future non-members may be present and take part in the discussions, but have no more rights, and the officers will be elected by ballot instead of by the old method of voting openly.

Resolutions were read on the death of Senators Hawley and Platt of Connecticut, who were always ardent in their aid of tobacco raisers. H. S. Frye gave a eulogy of the senators.

The afternoon session was devoted to an excellent address by Dr. E. H. Jenkins of the Connecticut agricultural experiment station. He spoke on "Seed Selection," and after the speech the members spent the rest of the time in general discussion of the topic. Dr. Jenkins made as the main point of his talk the fact that it is just as posible to improve the yield and quality of tobacco by selection and breeding as it is to do the same for corn and beet sugar. This can be done by choosing the best plants and covering them with a bag to keep the seeds from mingling with those from the less sturdy.

The work of the Connecticut station was explained at some length in connection with the above.

Suffield

The long-looked-for and much-needed rain has come. While the tobacco has stood up well, it was beginning to show the effects of the hot, dry weather.

There is one man in Suffield, however, who is not dependent upon the clouds for water. That man is Herman Ude. Mr. Ude has on his farm an artesian well 400 feet deep, the capacity of which is about 6,000 barrels of water daily. The water from this well is pumped on the tobacco land, from 30 to 40 barrels being allowed to run between each two rows. In this way three acres can be watered in a day. As Mr. Ude has about 20 acres of tobacco, the pumps are kept going day and night in order to keep the crop properly watered. As to the final result of his experiment, Mr. Ude could not say, as he has tried the scheme only a few days, but, judging from the way the plants have brightened up in the short time he has tried it, the plan appears to be very successful. His crop is looking good and is well worth seeing.

Imports Into Costa Rica

U. S. Consul John C. Caldwell, at San Jose, Costa Rico, writes that by a decree issued on May 20, 1905, the importation of leaf tobacco into Costa Rica, which has heretofore been a Government monopoly, is made free to everyone. The rates of duty are fixed at 1.75 colons plus 1½ centavos wharfage and special tax, a total of 1.76½ colons (82 cents United States) per kilogram (2.2046 pounds). Iztepeque tobacco is excluded from this provision and remains a Government monopoly. The decree takes effect August 1, 1905.

Kentucky Tobacco

It is stated that by the first of August Kentucky tobacco will have all been put on the market and disposed of. Sales are constantly showing a falling off in quantity, most of it being of a common grade.

Weather Crop Bulletin

The latest reports from the weather crop bulletin of the Department of Agriculture on the condition of tobacco plants throughout the country show that the general condition is promising though the crop is suffering for cultivation in Kentucky. Good growth is reported from nearly all the tobacco states as follows:

New England – Tobacco showing well.

New York—Tobacco growing well.

Pennsylvania – Tobacco making rapid growth.

Maryland—Tobacco growing rapidly.

Virginia – Tobacco improved, but still late; early fields coming on top.

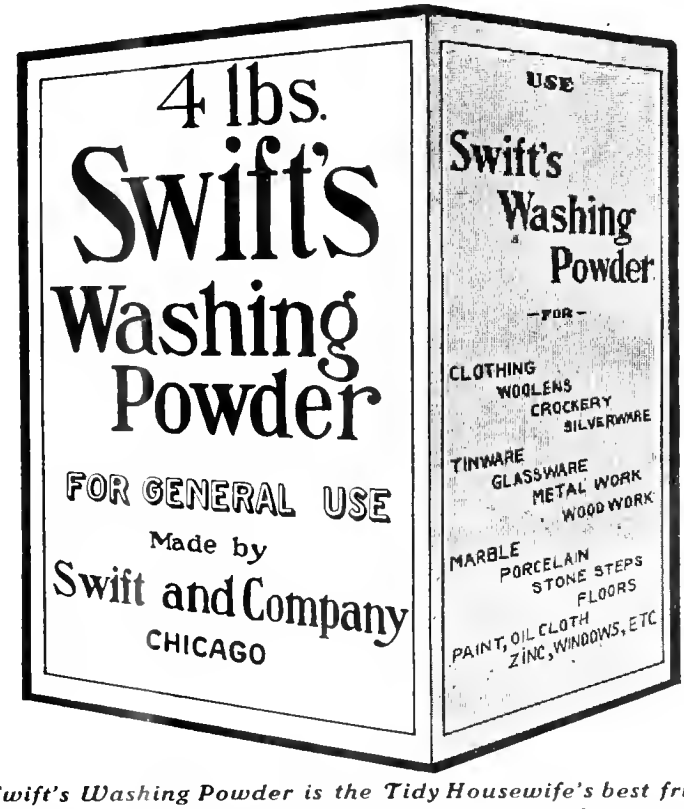
North Carolina—Tobacco variable in size and maturing rapidly, curing not yet general.

Tennessee– Tobacco making good growth.

Kentucky – Tobacco doing well, needs cultivation, topping begun.

Indiana—Tobacco in good condition.

Wisconsin—Tobacco good.



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191 John Street, - - BOSTON, MASS.

Agricultural Education.

This year may be taken as marking the semicentennial of agricultural education in this country. Fifty years ago the state of Michigan took steps to establish an agricultural college, which was the first institution of the kind in the United States. Two years from now it is planned to celebrate in a fitting way the anniversary of its opening.

Things always move more slowly at the start, but agricultural education is now moving faster and faster every year, so that with the rapid development of efficient courses for it much greater progress may reasonably be expected in the near future, the effects of which will be far reaching in our national life.—Dr. E. W. Allen.

Why Butter Is High.

Large dealers who have taken time to study the butter situation with some care express themselves surprised at the scarcity of butter. They find that the western receiving centers which used to send large amounts to the east have now scarcely enough butter for their own use. Both Chicago and New York have unusually small receipts for the time of the year. The compiler of the Elgin dairy report is inclined to think that the trouble is not underproduction, but is owing to the increase in demand. In other words, the use of butter has more than caught up with the production and now exceeds the ability of dairy farmers to produce fine butter.

A Vegetable Variation.

In the early spring, when there is a great scarcity of fresh vegetables, chicory and spinach being about the only resource of the housewife, tender young hop sprouts are exposed for sale in the Brussels (Belgium) market and are in great demand during the season, which lasts from March 15 to April 15. The sprouts are cut from the foot of hop plants which have been covered with earth during the winter months. When the earth is removed the tender sprouts are cut, care being exercised to leave sufficient to form new sprouts.—Gardening.

Continuous Potato Growing.

I know of some one living near me who has grown twenty-nine crops of round potatoes in twenty-nine consecutive years on the same piece of ground, and all the fertilizer of any kind that has been put on was simply stable manure. I know that to be a fact, and I can produce affidavits to that effect. When he dug the last crop I was there, and the crop was a marvel. The ground was, figuratively speaking, covered with elegant potatoes.—President Skillman of New Jersey Horticultural Society.

An Art Critic.

"What do you think of our new oil painting?" asked Mrs. Newrich.

"Well," answered Mr. Newrich, "It seems good enough from the front, but if you turn it round and look at the other side I must say the material seems kind o' cheap."

A Prayer Before Work.

The day returns and brings us the petty round of irritating concerns and duties. Help us to play the man; help us to perform them with laughter and kind faces; let cheerfulness abound with industry; give us to go blithely on our way all this day; bring us to our resting beds weary and content and undishonored, and grant us in the end the gift of sleep. Amen!—Robert Louis Stevenson.

Would Like to Be There.

A Maine French Canadian mill operative in Biddeford asked his overseer for a few days leave of absence. Being short of help, the overseer asked him if it was anything very particular that he wanted to stay out for, and he replied, "Yaasir; I'm goin' to git marrit, un I'd lak be there; that all."

The Tobacco Acreage.

In general, it may be stated that there will be an increase in acreage for all types of cigar tobacco, for burley and for the regie or dark tobacco grown in Kentucky, Tennessee and a small section of Indiana. In the Virginia sun cured and the Virginia dark districts the acreage remains about the same as last year. In the Virginia bright district and the old bright belt of North Carolina the acreage will be decreased to some extent. In the new bright belt of North Carolina and South Carolina the acreage will be increased, the increase in South Carolina promising to be quite large.

A SUITABLE LOCATION

For Tobacco Growers

FOR any business man, professional man, or industry, is easily obtained by consulting the Industrial Department. ¶The proposition submitted will be attractive, embodying just the information desired to intelligently consider such an important matter as change of location. ¶Our monthly magazine of Southern opportunities will prove invaluable to those interested in the South.

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IS the most beautiful section of America, heretofore without rail facilities. The climate is delightful, the atmosphere salt-laden and perfumed by thousands of blossoming orange, lemon, grape fruit and guava trees and the most beautiful and fragrant of flowers. ¶A land of perfect health, ideal living, where crime, trouble and ill health are as yet unknown. Manatee booklets describe it in detail.

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J. W. WHITE *General Industrial Agent*
Portsmouth, Va.

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Southwick, Mass.,—Foreman, H. L. Miller.
East Canaan, Conn.,—Foreman, L. F. Bronson.
Barkhamsted, Conn.,—Foreman, L. A. Lee.
North Hatfield, Mass.,—Foreman, Willis Holden.
New Hartford, Conn.,—Foreman, James Stewart.

SUMATRA PLANTATIONS:

Pine Meadow, Conn., ... 25 Acres
Barkhamsted, Conn., ... 20 Acres
Southwick, Mass., ... 15 Acres

Always in the market for old Tobacco if well assorted and packed. Havana Seed Wrappers a specialty, assorted and sized into thirty-two grades. . . . . .

FRUIT OUTLOOK.

Much Uncertainty In the Commercial Prospect For Apples.

It can safely be said that the outlook for apples throughout the United States is a shade less satisfactory than early in June. Reports from the all important Empire State continue to tell of Baldwins showing up light; other varieties are more promising. It is significant, however, that orchardists in some of the most prominent apple producing counties of New York are talking "moderate to light crop this year." They base their belief partly upon the fact that last season saw a heavy yield. This sentiment is reflected by coopers offering barrels at lower bids than could be obtained last season.

Special advices from American Agriculturist correspondents in Niagara county, N. Y., say there is a fair to heavy setting of all varieties of apples except Baldwins. A Wayne county orchardist writes that the outlook is for half of last year's yield. In Albany county Hubbardstons will make a fair yield, others showing up light. In Onondaga the drop is not proving heavy, yet our correspondent says that they are looking for no more than a medium to fair crop. In Erie the June thinning was large as far as apples are concerned, due partly to very wet weather. In Columbia peaches give indications of a full yield; apples fair. Peach prospects in many of the leading New York counties are excellent.

In Maryland.

Writing from Maryland a big commercial orchardist, with interests in various sections, says apples promise a half crop in Washington county, Md., Franklin county, Pa., and Frederick county, Va. In Cumberland county, Pa., apple prospects are medium to fair. June drop late starting; peaches fine. In some parts of New Jersey plums and cherries are light, peaches showing good promise.

The Maryland peach crop will be light. Early prospects for apples in Virginia were excellent, but there came a marked deterioration last month.

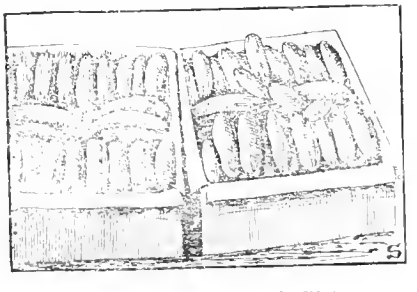
New England and Other Points.

In New England the promise for peaches is most excellent, the setting in Connecticut being the best for many years. As is the case in New York, many reports from New England tell of Baldwin apples showing up light.

Heavy rains in southwestern Michigan have cut down the apple promise to some extent, yet many districts of that state report the general fruit outlook as favorable. Illinois and Missouri orchardists are not hopeful of securing great returns from apples this year. In the latter state a 25 per cent crop is estimated by reliable authorities.—American Agriculturist.

Neat Package For Cucumbers.

A neat manner of packing fine cucumbers in boxes is shown in the cut. These particular ones, pictured by



FINE CUCUMBERS IN BOXES.

New England Homestead, are said to have been grown under glass and fertilized by bees. They were sent to the New York market and have brought the grower as high as $2 per dozen in midwinter.

If the first spikes of strong gladiolus are cut when fairly in flower they will usually throw up a number of new spikes.

CORN SILAGE.

In Milk Making and Steer Feeding. Midsummer Benefits.

Making corn into silage is a means of preserving the grain, as well as the stalk, in the best possible condition for feeding and without the expense of shelling and grinding, says Wilber J. Fraser, chief in dairy husbandry at the Illinois experiment station. In feeding whole corn, either in the ear or shelled, many of the kernels are not digested. With silage, the grain being eaten with the roughage, nearly all the kernels are broken during mastication and, since they are somewhat soft, are practically all digested.

By the use of the silo the corn is removed from the field at a time when no injury is done the land by cutting it up while soft. As the corn is cut before the blades are dry enough to shatter, there is no waste from weathering, and both stalk and grain being in good condition the whole crop is consumed by the stock, while with dry shock corn a large percentage of the leaves and butts of the stalk is wasted.

Being a succulent feed, corn silage tends to heavy milk production and should be given an important place in the ration of dairy cows. It has proved an important factor in steer feeding as well as in milk production, but a steer cannot be finished on silage alone, any more than a cow can produce her best yield of milk on such a ration.

In Midsummer.

A pasture will carry much more stock during spring, early summer and fall than it will through the hot, dry weather of midsummer. By helping the pasture out at this season with partial soiling the cattle not only have better feed during this critical period, but more stock can be carried on a given area than by pasturing alone.

Mr. Fraser also remarks in bulletin 101, from which these points on the silo are taken, that as land increases in value and farming becomes more intensive there is greater need for soiling, and the most satisfactory method of providing a substitute is by means of the silo. It requires too much labor to cut green crops every day and haul them to the cows, and, besides, there is necessarily a great loss in being obliged to feed the crops before they are fully mature and after they are overripe.

Mr. Fraser concludes that no crop furnishes more feed to the acre than corn, and with the silo it can be utilized for soiling, thus permitting the whole crop to be harvested when at the right stage of maturity and fed when needed, saving both feed and labor.

Putting Cowpeas Up Green.

One method of harvesting cowpeas is to put them up green, and this is satisfactory, according to a very good authority, when they are so packed that air can circulate freely through them. One of the methods of putting up green is to erect a stack pole and nail a strong crosspiece on the pole extending to the outer edges of the stack. Put on a layer of green vines two or three feet thick, then nail on another crosspiece, and so on to the top of the stack, finishing off with grass hay. The crosspieces prevent the vines packing down closely and at the same time allow the air to enter the stack. They can be cured and kept by this method. It is somewhat more expensive than curing in the field, as it necessitates the handling of a great amount of water in the green vines, and the cost of stack pole, crosspieces, etc., amounts to something.

Hog Manure.

Hog manure is very variable in composition owing to the variable nature of the food supplied to this animal, but is generally rich, although containing a high percentage of water. It generates little heat in decomposing.—W. H. Beale.

THE GARDEN KEYBOARD

The planting of maize and late crop celery is now in progress.

Cultivation will in part protect from midsummer drought and keep up growth.

Green corn, onions from sets, cucumbers, early potatoes, cauliflower, cabbage and summer squash are among toothsome products that one may now gather from the well managed garden.

Trees and shrubs thoroughly watered at times during the dry weather will repay the trouble in greatly increased growth and beauty.

A Southern Location

**For Your Home,
Your Manufacturing Plant,
Your Business.**

FARMS IN VIRGINIA, NORTH AND SOUTH CAROLINA, GEORGIA, ALABAMA, MISSISSIPPI, KENTUCKY, TENNESSEE.

GOOD LANDS AT LOW PRICES.

A healthy Climate, Long Growing Season and an all-the-year working Season.

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M. V. RICHARDS,
Land and Industrial Agent,
Southern Railway, Washington, D. C.

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TARIFFVILLE
Connecticut

BUTTER WEIGHT.

What One Observer Learned From a Visit to a Grocery.

Live and learn. I heard a respectable looking, motherly soul, making purchases for the family, say to the grocer, "Be sure to give me butter weight, now, for I've been a long time customer of yours." "Certainly, Mrs. MacLaren," he replied cheerily, "you are entitled to it if any one is." Yet she bought no butter.

"What is butter weight?" I inquired when she had gone. "Why, that's just a little sop we hand out to some of our old customers," said the salesman. "Instead of making an exact pound of anything they buy we make it a fraction over, which tickles them nearly to death. Of course we are particular to let them see they are getting more than their money's worth; hence we keep their trade."

I next asked how the store made up for this extra allowance. "That's dead easy," was the reply, "but as it is a trick of the trade I don't think we ought to tell everybody." "Perhaps other customers receive short weight?" "If they do, we don't let 'em know it."

"Maybe your prices are just a fraction over the market?" "Never! We sell cheaper than anybody." "Maybe your goods are inferior?" At that he quailed.

Referring to a dictionary, I learned that butter weight is an allusion to a custom of exacting seventeen or eighteen ounces or even more to the pound of butter, possibly on the ground that the water in it would soon evaporate and bring the pound down to sixteen ounces. In Scotland iron weight (twenty-one to twenty-eight ounces to the pound) was used in buying butter.

Half the secret of keeping a pleasure garden in proper condition consists in duly regarding the little things that ought to be done and doing all work at the right time.

It is not too late to set a border of lobelia which shall look like a long blue ribbon all the summer through. Lobelia is grateful for small attentions, flowering freely.

Lima Beans In New Jersey.

Lima beans are getting to be another uncertainty. Even after we have grown the vines we do not feel at all certain whether we will harvest a crop, as so many blossoms and tiny pods drop prematurely. Some of us have tried to overcome this by leaving only one plant to a pole and trimming that one, but with only partial success. It would be interesting to know whether plantings on a hillside, where there was good air drainage, have in this respect fared any better than ours on the flat river lands. I have been unable to try it myself, as our farm is not high enough above the river.—H. C. Taylor.

GARDEN SNAPSHOTS

Among the string beans those with the wax colored pods are the most popular with many persons because most attractive in the market and on the table.

The white limas, both dwarf and tall sorts, are the chief dependence for green shelled beans, since most people object to colored ones.

The deep yellow fleshed varieties of pumpkins are preferred and are mostly largely grown in the north, while in the south the lighter colored kinds are more popular.

The oval shaped and very dark colored eggplant is so generally preferred that the light colored and long varieties are seldom seen.

"Seed Spot" Planting.

An interesting way of planting in reforesting waste lands is known as the "seed spot method" and consists, according to an exchange, in breaking up the ground in small spots about two feet square at intervals of eight feet away. A dozen seeds are scattered on the loose earth and lightly covered with soil. When the seedlings are two years old one is left where propagated. The others are used to plant in intervening spaces each way and in other locations as needed.

The Selection of Seed Plants

(Continued from page 5.)

to make the most careful selection and who have the facilities for it, to pick the leaves from the separate seed plants, when they are ripe, cure them as usual in the barn with the rest of the crop, keeping the leaves of each plant by themselves, suitably labeled. If opportunity offers, let them be fermented with other tobacco during the winter. They can then be judged quite fairly as to burn, colors and texture, and the seed of the very best of them saved for the following crops.

"When the pods are mature, the seed heads, bags and all, should be cut off, and hung up in a dry, airy place, where they can thoroughly dry out in a free circulation of air. After drying it is a good plan to keep them where the temperature does not fall much below zero. In the spring, when the time comes for the preparation of the good seed for sowing, the largest and best pods should be picked off by hand, and thoroughly threshed out to remove all seed. The seed should then be separated with the seed separator of the way described in Bulletin 149 in this Station."

Now we do not imagine that the facts here pointed out are to revolutionize the growing of tobacco in the state. They show, however, how growers, by themselves, have, in our experiments, already secured and how others can secure better and more uniform crops and can overcome the tendency of our tobacco to become too large for the most profitable use.

It should be said that Mr. Shamel, representing the United States Bureau of Plant Industry, and the Agricultural Station at New Haven are cooperating both in the study of the improvement of tobacco by selection and hybridizing and also in giving practical help to tobacco growers who wish to test our work on their farms. We plan to visit farms together, just before topping time, to help any who are interested in selecting and capping plants. Any who wish for such assistance are invited to write to the Agricultural Station at New Haven.

Bulletin 150 will be sent to any one who applies for it, as long as the edition lasts.

FIGURE 5.

Tariffville

Tobacco is suffering for the want of rain. If the drouth continues for another ten days, the crop will be very short in this section.

Most of the farmers have started topping their tobacco and some of the early set will soon be ready to cut.

Robert Forsythe is building him a new shed 200x40 feet with 20 feet posts.

Most of the farmers in this section are saving some of their seed under bag this season and if they are careful in making their selections, they will, no doubt, profit by it, as can be proven by noticing the selections which have been made for the past two years. Selections made for the past two years conform in every way to their present plant. And at the government experiment conducted by A. D. Shamel, at the Indian Head Plantation, Granby Station, can be seen over 100 different selections besides many hybrids some of which give promise of becoming very valuable to the growers in the open field. It will pay anyone interested in the improvement of their tobacco crop to visit this plantation.

Windsor Locks

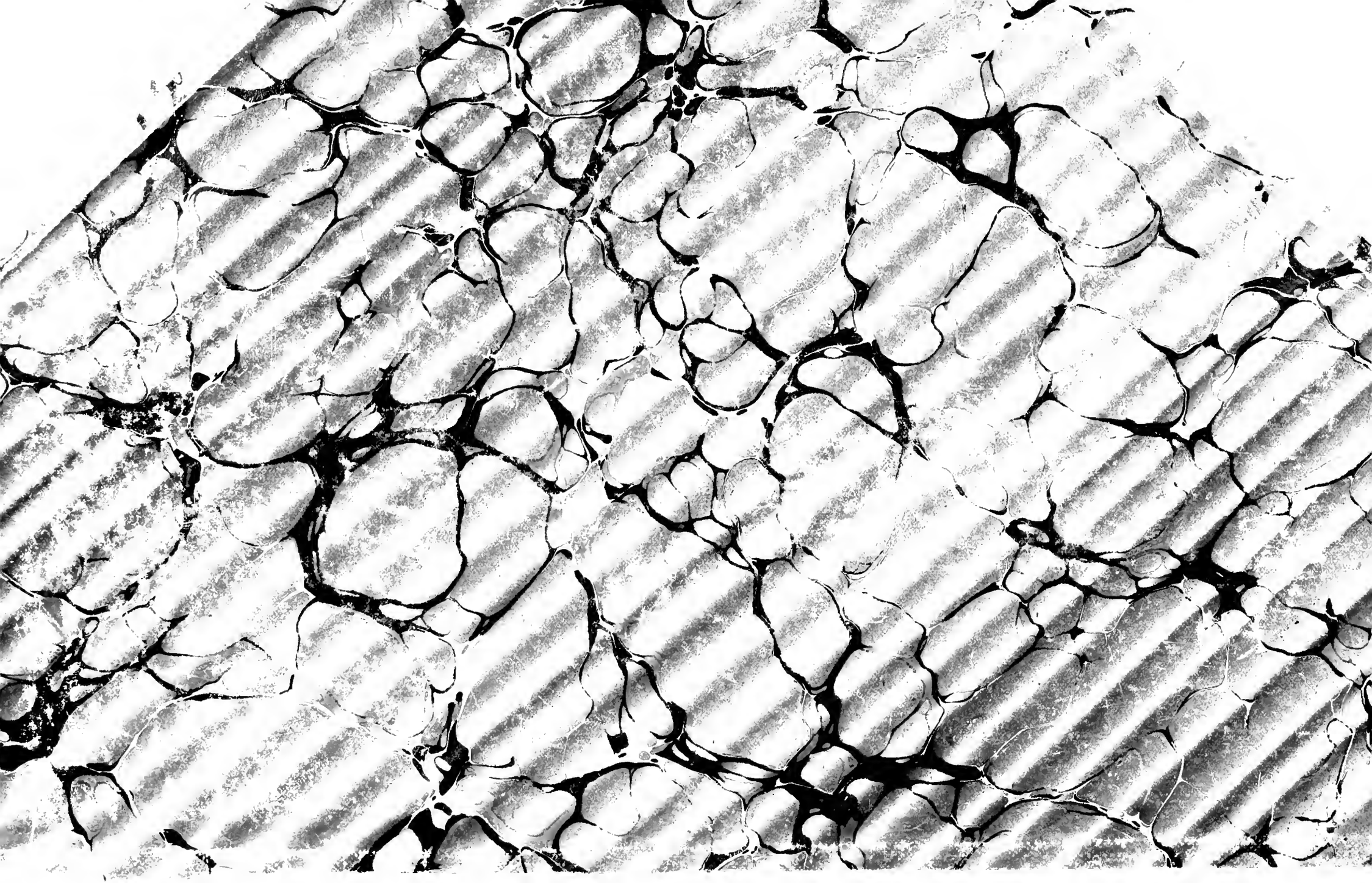
The tobacco crop is coming along finely. The plants are beginning to bud and blossom in many fields. The recent rain came just in time to help the plants the most. There seems to be every indication of a successful crop and one which will exceed that of last year. The crop then was a large one, but because of unfavorable weather the quality was not of the best. It is hoped and expected that such will not be the case with this season's crop. The increased acreage of this year's shows that the farmers have staked a great deal on their tobacco fields, and a heavy hailstorm or a strong wind would do irreparable damage.

Westfield

Several hundred acres of fine tobacco will soon be ready to top. Westfield tobacco stands high with buyers and attributes which some Massachusetts-grown leaf does not possess are claimed for the Westfield product.

A larger amount of money has been expended for new barns and other paraphernalia in Westfield than in any other Bay State town the past year.

South Granby

The crop is growing exceedingly fast these hot days.

James Whitcomb has twelve acres and there are more acres in this vicinity than before in two or three seasons.